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THE PREPARATION AND THERAPEUTICS OF HYDROCHLORATE OF COCAINE.

By L. E. Sayre, Ph.G.

Recent developments connected with this comparatively new salt have excited much interest in the medical profession. Its peculiar property—one for many years sought after, yet until recently almost unknown—has been at length found to exist in this alkaloid obtained from Erythroxylon Coca, namely, that of producing local anæsthesia. By its use the surgeon can, without pain or discomfort to the patient, perform an operation which must otherwise cause great agony. It is said, however, that, while there is produced an insensibility to suffering, the sensibility to touch, in the same part, still remains.

That such a property should be discovered in a substance so apparently innocent, seems truly worthy to be considered a triumph in the chemistry and therapy of the present day.

The formula for its preparation, as given to me by Mr. M. Eisner, which is substantially that of Niemann (see "Amer. Jour. Phar.," 1861, p. 123), is as follows: Displace coca leaves with dilute alcohol and a small quantity of sulphuric acid. Add calcium hydrate to the percolate, neutralize with sulphuric acid, distill off the alcohol. Dissolve the residue in water, and filter; add soda bicarbonate to the filtered liquid, and wash with ether, adding a small quantity of muriatic acid. The ethereal solution will deposit the hydrochlorate of cocaine in an amorphous mass, gradually crystallizing. Purify by dissolving in water, precipitating with soda bicarbonate and washing with ether, and leave it to crystallize out of the ethereal solution.

Local narcotization was practiced long ago, of which a number of instances might be cited, but the scope of this article will admit of only a few.

Bouisson used a plaster of opium to the toe of a patient for some time, and afterwards succeeded in partially tearing away the nail without causing pain. He used belladonna ointments to relieve the pain

of operation upon *fistula in ano.* Plans have been in vogue for smearing bougies, catheters, etc., with narcotic ointments while dilating, cauterizing or incising urethral strictures.

B. W. Richardson (1866) used the atomizer for rendering parts insensible, the most volatile liquids producing the best results.

H. J. Bigelow recommended the use of rhigolene spray. By these means the part to which the application was made was temporarily frozen, and thus the sensibility was almost entirely destroyed. Freezing mixtures of salt and ice were long formerly used for this purpose.

Von Anrep, the first one to apply cocaine to the eye, in 1880, used a solution containing ½ milligram to the conjuctiva. He noticed it caused temporary dilatation of the pupil, but took no note of the temporary insensibility produced.

Dr. Isaac Ott experimented, in 1876, internally, and noticed resulting pupillary dilatation.

In order to obtain reliable information concerning this new agent, the writer has interviewed some of the leading oculists of this city, and obtained from them their experience and opinions in regard to it.

Peter D. Keyser, M. D., Professor of Ophthalmology in the Medico-Chirurgical College, and one of the Surgeons to Wills Eye Hospital, stated that his experience had been with varied operations, and that he finds it to be, as a local anæsthetic, "one of the grandest things discovered, but it does not seem to pass deeply into the tissues." In cases of strabismus there was not the least pain in grasping and cutting the conjunctiva, nor until the hook was passed under the muscle and its tendonous attachment cut.

This part of the operation was very painful. In cases of discision for soft cataract, and in removing a cretaceous capsule, it acted charmingly, but when the iris was grasped and cut there was the usual pain. In the removal of foreign bodies upon the cornea, it comes splendidly into place. The proper way of instilling it, is to run a drop over the cornea, every minute, of the 4 per cent. solution, for 3 or 4 minutes, and then go ahead with the operation, for by that time the complete anæsthetic influence is attained. If the operation is a little long, the instillation is continued every few minutes during the whole time. Its influence passes off in about 10 to 15 minutes. As a whole, it is one of the most advantageous substances that has yet come into use for the purpose intended, as it will save the trouble of etherizing in many cases, and be the cause of saving time in operations as well as

relieving pain in many little cases almost too light to chloroform or etherize for. With inflamed or congested eyes, more frequent instillation and longer time are required to obtain the effect.

Hypodermic injection under the conjunctiva caused its anæsthetic action deeper, and relieved pain in tenotomy in strabismus operations.

The 4 per cent. solution is preferable to the weaker ones, the latter requiring longer time in proportion to their strength.

Dr. Henry S. Schell, of Wills Eye Hospital, gives me his experience, as follows:

"1. The most favorable class of cases for the use of the drug is that where a foreign body is embedded in the cornea. These cases are very numerous, are accompanied by much pain and are often difficult to deal with, especially in children, on account of the inability of the patient to control the movements of the eye when it is approached with a spud for the purpose of removing the offending particle. As a general rule, however, in 5 minutes after the instillation of 4 drops of a 2 per cent. solution of cocaine into the conjunctival sac pain is gone, and the cornea is insensitive, so that the foreign body can be picked out with deliberation and accuracy. But this happy result is not invariable. In many cases several repetitions of the instillation, at intervals of 3 minutes, will be necessary before the requisite insensibility can be obtained, and in some instances the patients have asserted that the drug had no effect whatever.

"The best way to apply the solution is to insert the drops into the outer angle of the eye, the patient being in a recumbent position, or with the head thrown well back, and then to retract the eyelids so that the fluid can find free access to all parts of the conjunctival sac.

"The action of the drug is accompanied by a blanching of the surface vessels, as well as dilatation of the pupil and paresis of the accommodation. The progress of the anæsthesia may be measured by occasionally touching or scraping the conjunctiva with the point of a needle.

"2. In strabismus and cataract operations, in iridectomies, etc., it will be found necessary to use the cocaine solution more freely and of greater strength. Two drops of a 5 per cent. solution may be instilled every 3 minutes. After from four to eight such applications the operation may be performed. It has not yet been my good fortune to see any case where the free use of the strabismus hook, or the cutting of muscle, was unattended with pain. I have been told of a case where

enucleation of the eyeball has been performed without discomfort to the patient, by the liberal use of cocaine. This is to me very surprising."

"3. In painful diseases of the cornea this drug is of much benefit. It is especially useful in phlyctenular keratitis with great photophobia. The attendant blepharospasm is completely relieved, and the child's eyes may be examined without its screaming or struggling. In the severe cases of irido keratitis, of constitutional origin, cocaine will relieve the intense photophobia after all other measures have failed. I have not observed, however, that the drug has any curative effect upon the morbid processes."

The following observations and conclusions are quoted in full from a communication to me under date of November 12th, from Dr. Charles A. Oliver, one of the Ophthalmic and Aural Surgeons to St. Mary's Hospital, of this city, who for some time has been making personal use of the drug, besides having access to the current literature upon the subject. He therein furnishes me with a few data of its use and value in ophthalmic practice, which he has kindly tabulated in a series of definite observations and conclusions:

"With varying quantities of three to eight drops of a two per cent. solution instilled into healthy eyes twice or three times, at five minute intervals, the following observations were made:

"1. Almost *ad maximum* pupillary dilatations occurred in forty-five minutes to an hour, the pupil returning to normal size in four to six hours. This length of time could not be considered as normal, as it merely represents the invividual muscular *tonus* and amount of endosmosis.

"2. During the time of dilatation, the pupillary rim of the iris assumed various irregularities in outline of the same character as may be seen in the action of Duboisia and Homatropine upon the iris.

"3. At the time of instillation, no more local inconvenience or pain was complained of than during the use of the solution of the neutral salts of the other mydriatics.

"4. In some instances, in a few moments following the use of the drug, there was a complaint of a saltish taste, which quickly passed away.

"5. In no instance was there the least constitutional manifestation of the drug.

"6. In every case, accommodative range was lessened, but to what

extent, no accurate determination had been made. This came on during the pupillary dilatation, and fully returned in several hours' time.

"7. In each case, there was both local analgesia and anæsthesia. Sensation of pain was lost wherever the drug had touched, and sensibility was deadened in localized areas. These evidenced by the pinching of the conjunctiva with forceps without causing any pain; whilst in some places the grasp was not felt at all, that is, when care was taken not to exert a dragging over a large area of conjunctiva.

"Conclusions:

"First. Upon account of the evanescence of pupillary dilatation and the quick return of ciliary power, the drug will be of great value in making ophthalmoscopic examinations in cases dependent upon their use.

"Second. It will be useful in cases where it is desired to introduce instruments of holding or fixation beneath the lids. Lachrymal probes coated with ointments containing the drug may be of advantage in lessening the sensibility of the passages during the maintenance of the probe in position. In fact, it may be used where any instrument of precision or of treatment is apt to cause error, inconvenience or harm by pain or sensibility.

"Third. It may be of value in annulling the pain from applications of cauterizing agents, strong astringents, etc., although it is to be remembered that the tissues may be rendered momentarily abnormal by the anæsthetic to such an extent as to prevent proper actions of the astringent or cauterizing material.

"Fourth. In diseases or injuries of the external eye, where nerves are exposed or irritated, it may be employed with much soothing benefit. Thus, in scratches of the corneal epithelium or of the conjunctiva, in superficial ulcerations or nerve irritations, it may be of inestimable good.

"Fifth. It may be of value in various surgical operations upon those parts of the eye which can be readily reached by the drug, such as the extraction of foreign bodies from the cornea and conjunctiva, slitting of canaliculi, extirpation of corneal or conjunctival tumors, etc.

"Sixth. It may be of service as a local hæmastatic in cases of operation where it is desired to follow the steps of the procedure without obstruction from clots and masses of blood, or as a remedial agent in arresting hæmorrhage from trauma or disease.

"Seventh. Judging from its action upon the iris and ciliary muscle,

it may be of some importance in operations upon these structures in lessening pain and checking hæmorrhage.

"Eighth. By its use in ophthalmic surgery all of the petty annoyances from general anæsthesia may be done away with.

"Ninth. In view of the powerful effect of the drug upon the eye, more data are necessary before it can be *universally* employed as a local anæsthetic in eye-surgery."

SYRUP OF DENTITION.

By W. B. Thompson.

A compound, with the above as a title, is being ordered of the apothecaries of this city, by prescription, ordering by title alone, generally finds the dispenser unfamiliar with this class of preparations. In the absence of other accessible means it is, of course, only by application to the prescriber or to some druggist who may happen to possess it, that the dispenser can procure the formula. It is proper that as soon as such recipes come into vogue or use they should become, through publication, common property, to the end that all may have equal opportunity.

The writer, on procuring the formula, and being under the impression that it was original in the French Codex, applied to Professor Maisch, who, after examination, very kindly gave the following information:

Dorvault's l'Officine (but not the French Codex) contains the recipe under the name of 'Sirop de Dentition de Delabarre,' with a formula very similar to that you gave me, as follows:

℞.	Juice of fresh tamarinds	3 gm.
	Infusion of saffron (strength 3 per cent.)	2 "
	Purified honey	10 "
	Tincture of vanilla	25 "

Dorvault says, in a note appended, "The juice of tamarinds may be replaced by the pulp diffused in water" (proportions not given), the fresh juice, of course, not being obtainable.

There being, as will be observed, considerable obscurity in regard to proportion of ingredients in the components of the above, something will have to be assumed by individual judgment in working out an acceptable and nice compound. The preparation will be assigned,

naturally, a place among the fanciful, but will attract the attention of the younger members of the medical fraternity by its novelty. The elders, we imagine, will want it but seldom, unless it can be demonstrated that it has something of utility in it. As a placebo it may divert the infant by sweetening the coming tooth, but that it will assuage or mitigate the pain of that sometimes painful process, dentition (if that be the purpose and intention of the preparation), readers will pardon the writer for doubting.

PHILADELPHIA, November 15, 1884.

SODIUM BOROBENZOATE.

BY THOS. S. WIEGAND, PH.G.

Having had occasional prescriptions for borobenzoate of sodium, and being unable to find a formula in the commoner treatises on chemistry, I obtained the following formulas from friends who had used them, and offer them for publication.

For making the salt (said to be taken from "Johnson's Medical Formulary):

Take of Borate of sodium ..... 3 oz.
Benzoate of sodium ..... 4 oz.
Water, sufficient to dissolve.

Make a solution of the salts in the water, and evaporate, with constant stirring, to dryness. One-sixth of these proportions yields an ounce.

Or,

To a hot solution of borax add benzoic acid sufficient to saturate it, and evaporate to dryness.

The latter formula would seem preferable. The salt is prescribed in 12- or 15-grain doses, given with tonics.

The following prescription has been used by Dr. D. H. Agnew, of this city, and evidently contains the same salt, although made extemporaneously:

℞ Sodii biboratis ..... ʒii
Acidi benzoici ..... ʒiss
Spir. juniperi .....
Syr. hypophosphitum ..... *aa* f℥ii
M.
Sig. A tablespoonful 3 times daily.

LABORATORY NOTES.

Abstracts from Theses.

Fluid Extract of Convallaria Majalis.—The most satisfactory results, according to Wm. E. Cassell, are obtained by using for 16 troyounces of the drug a menstruum composed of 3 fluidounces of glycerin, 5 fluidounces of water, and 8 fluidounces of alcohol, and exhausting finally with diluted alcohol. Fourteen fluidounces of the percolate are reserved, and the remainder is mixed with 1 fluidounce of glycerin, evaporated to two fluid ounces and mixed with the reserved portion.

Verbena hastata.—Alexander A. Weber has found the blue vervain to be an excellent sudorific. The root, leaves and flowers are used, but the root, which has a bitter, astringent and nauseous taste, is the most active. The *fluid extract* is a convenient preparation and is made with diluted alcohol in the usual manner; the dose of it is one-half to one fluidrachm.

Iris versicolor.—The oleoresin prepared by Wm. L. Cliffe, yielded to acidulated water a brownish amorphous substance, which, after the separation of the acid, was soluble in ether, alcohol and water, the latter solution giving precipitates with potassio mercuric iodide and with potassium biniodide, while the alcoholic solution, acidulated with nitric acid and tested with phosphomolybdic acid gave a brilliant green color in a day or two. The drug after treatment with benzin, yielded to 80 per cent. alcohol several resins, tannin and sugar. Cold water now took up albumen, and gummy and coloring matter, after which treatment with boiling water yielded a slightly colored liquid which did not become blue with iodine. The distillate with water separated a solid compound which became liquid at the temperature of the body. (See also "Amer. Jour. Phar.," 1876, p. 406, and 1881, p. 601.)

Teucrium Scordium has been used with advantage in hemorrhoids both locally and internally. Louis Murjahn has prepared a *fluid extract*, by exhausting the powdered herb with diluted alcohol in the usual manner; it is of a blackish green color and is given in doses of 1 or 2 fluidrachms. On evaporating this liquid, about 16 per cent. of a soft dark green *extract* is obtained, which has been used in the form of pills, one grain of it being combined with two grains of the powdered herb. For local use the *ointment* was prepared by mixing 1 part of the finely powdered herb with 9 parts of petrolatum.

Syrupus calcii lactophosphatis—Geo. Thos. Williams has found the

formula of Mr. Rother ("Am. Jour. Phar.," 1883, p. 610) to yield a more stable preparation than that of the U. S. Pharmacopœia, and suggests a few slight modifications so as to make the preparation correspond to the officinal.

Take of	Precipitated calcium carbonate	13 parts
	Lactic acid	33 "
	Phosphoric acid, U. S. P.	18 "
	Orange-flower water	80 "
	Sugar in coarse powder	600 "
	Distilled water sufficient to make	1000 "

Mix the lactic acid with 136 parts of distilled water and gradually add the calcium carbonate, warming gently, if necessary. Add the phosphoric acid previously diluted with 120 parts of distilled water and with the orange-flower water. Filter and pass enough distilled water through the filter to make the filtrate weigh 400 parts. Lastly, dissolve the sugar by cold percolation or by agitation and strain.

MEDICINAL PLANTS USED BY THE CREE INDIANS, HUDSON'S BAY TERRITORY.

By E. M. Holmes, F.L.S.,
Curator of the Museum of the Pharmaceutical Society.

Mr. Walton Haydon, who has resided for some time in the Hudson's Bay Territory, recently presented to the Pharmaceutical Society a series of specimens of the drugs used by the native Indians, and with them has also contributed some information concerning their uses, which may be of interest in the future if placed on record. Only the native name of some of the drugs is known at present, but Mr. Haydon has promised to forward specimens of the plants from which they are obtained on his return to Hudson's Bay.

The remainder I have been able to identify.

Pow-e-men-artic (Fire Root, or Bitter Pepper Root).—This is the rhizome of *Acorus Calamus*, L., or a nearly allied species, and is used in coughs. The rhizome is rather more slender than met with in this country, being only about one-third of an inch in diameter, but seems to be quite as aromatic and pungent. It is not a little singular that there is hardly a country where this plant grows that the rhizome is not used in medicine.

Wayakash?—This is the liber of the bark of *Abies balsamea*,

Marshall, freed from the periderm and leaving exposed the numerous vesicles in which the Canada balsam is secreted. The bark is about one line thick, has a short fracture, and is of a white color when broken; the inner surface is pale-brown and the exterior reddish-brown. The taste is astringent and bitter, with a flavor of Canada balsam.

Wakinakim, the bark of *Juniperus communis*, L.—This is used to make a poultice for wounds. According to Mr. Haydon it is prepared for use by taking a stick and cutting it into pieces about four inches long, boiling it until the outer bark comes off easily, scraping off the inner bark and beating it between two stones into a pulpy mass, which is applied to the wound. Mr. Haydon has seen it so used, and remarks, "It certainly seems to clear a foul wound well, and is the usual remedy employed by Indians for wounds of all kinds." The beneficial action of the bark is doubtless due to its great astringency, and to the volatile oil present in it, which would naturally act as an antiseptic.

Milawapamule, *Cornus sericea*, Herit., (Red Willow Bark).—This bark occurs in two qualities, one being in the form of slender quills, 3 or 4 inches long, bearing a slight resemblance to the bark of *Rhamnus Frangula*, but free from scars. The transverse fracture is yellowish-white, the inner surface light orange brown, and the exterior of a deep chestnut brown color, but when fresh of a bright crimson; the taste is bitter and the flavor resembles that of tea. The second quality consists of fine scrapings of the young bark. The latter is the form in which the bark is used as an emetic in coughs and fevers. For coughs the bark is boiled in water and the decoction strained and given while still warm in the dose of a wineglassful every few minutes until vomiting supervenes. For colds and fevers a teaspoonful of the decoction is taken occasionally. The scraped wood is also smoked, mixed with tobacco. Boiled with rust of iron it is used as a black dye.

Nepatihe, or Green Alder.—This is the bark of *Alnus viridis*, DC. It consists of thin shreds which have evidently been scraped off the young branches. The inner surface is of a pale dull brown and the exterior greenish brown. It has a very astringent taste with a slight bitterness and a flavor recalling that of the leaves of *Arbutus Uva-ursi*. It is used is dropsy.

Metoos (*Populus*, Sp.?) Poplar Bark.—This bark is in the form of thin flat strips of liber about half an inch wide and half a line thick. It has a bitter, slightly mucilaginous taste with some astringency, and

a fibrous texture. The color externally is dull brown and on the inner surface yellowish. Another form of the bark consists of thinner pieces torn into fine shreds. It is used in coughs, half an ounce, in the form of decoction, being the dose.

The inner bark of the poplar is eaten in the spring by the Indians, and is considered to act as a mild purgative. Mr. Haydon says he has eaten pounds of it without any effect being produced. It is at that time of the year pleasant in flavor, being sweetish and very tender.

Wetchus-y-usk-wa, or Service Tree, (*Pyrus*, Sp.?)—This is in the form of thin shreds scraped off the young branches. It is of a yellowish-white color on the inner surface, and of a purplish-brown on the outer. It has a slightly bitter, very astringent taste, and a strong tea-like flavor. It is used by the Indians in pleurisy and inflammatory diseases.

We-suk-a-pup (*Kalmia angustifolia*, L.), Bitter Tea.—The twigs with leaves and flowers are used in bowel complaints and as a tonic. A small handful is boiled in two pints of water, and a teaspoonful taken occasionally. A nearly allied species *K. latifolia*, is said to have cured an obstinate case of diarrhœa. In this instance an ounce of the leaves was boiled in eight ounces of water down to four ounces, and thirty drops of the decoction were given four times a day. When given six times a day this quantity caused vertigo. A case of poisoning from the use of *Kalmia latifolia* is on record, in which glowing heat in the head, loss of sight, coldness of extremities, were followed by nausea and vomiting (*Edinburgh Med. Journ.*, 1856, p. 1014), and subsequently formication, weakness of the limbs and great prostration of the circulation, remaining for several hours. It is pointed out in the United States Dispensatory (p. 1678) that *K. angustifolia* most likely possesses similar properties. It is remarkable, therefore, that it should be used as a tonic by the Cree Indians. The coldness of the climate may, however, modify the development of the poisonous principle, and species closely allied to a poisonous one are not always poisonous, as in the case of *Aconitum heterophyllum*, or even *A. paniculatum*, the latter nearly resembling the poisonous *A. Napellus*. Among other drugs mentioned by Mr. Haydon as being in common use by the Cree Indians are—Cedar leaves (*Juniperus virginiana ?*) and *Galium boreale* as diuretics; *Actæa spicata*, L., and *Iris versicolor*, L., as purgatives; *Mentha canadensis*, L., in the form of tea, as a stomachic; *Lobelia Kalmii*, L., as an emetic; *Solidago Virgaurea*, L., as a tonic; Fleabane (*Erigeron*

canadensis, L.?), in diarrhœa; the herb of *Prunella vulgaris* L., is chewed for sore throat.

Karkar-pukwa or Country Tea (*Ledum latifolium*, L.).—The fresh leaves are chewed and applied to wounds. The flowering tops are used as tea, and should be gathered when in full bloom. The dried flowers have an odor between that of tansy and chamomile. According to the United States Dispensatory the leaves are esteemed pectoral and tonic, and are said to have been used as a substitute for tea during the War of Independence. An account of the medicinal uses of this plant by the Indians of the North of Michigan will be found in the *Pharm. Journ.*, [3], viii, p. 850. By homœopaths it is used as a remedy for tender feet, especially when associated with rheumatism, and the tincture is highly esteemed for relieving the pain of the stings of insects. (See also *Amer. Jour. Phar.*, 1878, p. 54.)

Betula alba.—The white rotten wood of this tree is boiled in a decoction of *Ledum latifolium* for an hour. The wood is afterwards dried, rubbed to powder and sifted. In this state it is used for chafed surfaces, the flesh being washed with cold water and the powder then sifted on it. Mr. Haydon speaks highly of its value for this purpose, having had personal experience of its efficacy on chafed feet, etc. It is also used as a dusting powder for children.

Prunus virginiana, L.—The bark is used fresh, as a rule. It is used as a cure for diarrhœa. For this purpose a handful of the bark is scraped off a young bough and boiled in about a pint of water and a wineglassful used as a dose.

Castoreum is used to make a poultice for sprains.

Other plants used in medicine by the Cree Indians are *Apocynum hypericifolium*, Ait., and *Comandra livida*, Rich.

Leaves and barks used as an application to wounds are always chewed before being used. Emetics and purgatives are taken in the form of a decoction, a wineglassful is administered occasionally until the desired effect is produced.

Vermillion is also used in medicine, and the method of using it is as follows: It is mixed with gunpowder damped and lighted, the patient sitting in a closed tent and inhaling the fumes.

Although the list of materia medica is a small one there is remarkable judgment shown in the choice of remedies. Thus, *Prunella vulgaris* makes an excellent substitute for *sal prunella* balls in sore throat, and the bark of the juniper and Canada balsam tree are doubt-

less as good an application to wounds as a people unversed in antiseptic applications and ignorant of the existence of bacteria could devise. The use of a *Lobelia* as an emetic and of *Iris versicolor* as a cholagogue and purgative approaches closely to the practice of more civilized nations. The simple device of bleeding from an artery by piercing it with a sharp flint and stopping it by pressure with a button of wood and a bandage shows a respectable knowledge of surgery.—*Pharm. Journ. and Trans.*, October 18, 1884, p. 302.

BRAZILIAN DRUGS AT THE VIENNA EXHIBITION.

The *Zeitschrift des Allgemeinen österreichischen Apotheker-Vereines* now enables us to quote a series of notes upon the uses, etc., of these drugs. Very little is known about some of them in this country, and as South American drugs are frequently sent over to England, some of the information which has been furnished to the above may at a future time be found useful for reference. These notes are furnished to the above journal by Gustave Peckolt, apothecary at Rio Janeiro, son of the well-known botanist, Dr. Theodor Peckolt.

Carquega Amargosa.—The leaves of *Baccharis genistelloides*, Pers. (*Compositæ*).—The powerfully bitter leaves serve as a substitute for wormwood. A tea prepared from these leaves is much used for indigestion and diarrhœa, 12 grams of the leaves being infused in 600 grams of water and taken in doses of a wineglassful. An aqueous extract is used in conjunction with salts of iron for debility and anæmia; a spirituous extract in doses of 2 grams for liver disease, and the bitter resin every two hours in intermittent fever between the attacks.

The fresh leaves analysed by Dr. Theodor Peckolt were found to contain in 1,000 parts 1·347 per cent. of a volatile oil and 17·948 of a dark green soft resin soluble in ether, 11·218 of a dark green hard acid resin insoluble in ether, 3·236 of a brown bitter resin, 8·413 of a tannin giving a green precipitate with iron salts; also wax, fat, etc.

The fresh leaves afforded 10 per cent. of watery extract and 9 per cent. of a spirituous one.

The leaves are said to be exported in considerable quantity to France for preparing a secret remedy or some other purpose. The idea seems to suggest itself that this may be used as an ingredient of absinthe.

Jaborandi.—Mr. Peckolt remarks that various leaves of other rutaceous plants, more especially of the genus *Xanthoxylum*, are exported under this name by ignorant collectors (see *Pharm. Journ.*, October 20, 1883, p. 476, and *Pharm. Centralhalle*, No. 37, 1875).

Jurumbeba (*Solanum insidiosum*, Mart).—The leaves and unripe fruit are much used at Rio in vesical catarrh and liver disease. The drug is taken in the form of wine or pills and a plaster made with the extract is also applied externally. The dose of the leaves is 2 grams in 500 grams of infusion, a wineglassful being taken four times a day; of the extract 0·051 gram in the form of a pill four times daily. (See also "Amer. Jour. Phar.," 1877, p. 506.)

Mangueira.—The flowers of the mango, *Mangifera indica*, L. (*Anacardiaceæ*), are used either in the form of tea or powder for catarrh of the bladder. The powder is also used in the form of fumigation against mosquitoes.

Rosa de Caboclo.—The freshly expressed juice of the Indian rose plant, *Langsdorffia hypogæa*, Mart. (*Balanophoraceæ*), is used as an aphrodisiac, and the flower buds are eaten by the Indians.

On analysis 1,000 grams of the fresh roots of the plant yielded 9·015 grams of a soft bitter resin, and 7·768 grams of a yellow resinous acid soluble in ether, 3·137 per cent. of a brown resin insoluble in ether, 4·018 per cent. of a crystallized vegetable acid, 32·100 grams of a wax giving off a vanilla odor when heated, as does also the extract of the root. The vegetable acid does not correspond in chemical reactions with any known acid and seems to deserve further investigation.

Cipó de Chumbo (*Cuscuta racemosa*, Mart.).—The expressed juice of the fresh plant is used in menorrhagia and catarrhal affections. The decoction is taken internally and used externally for *crusta lactea* and as a gargle for inflammation of the throat. The powdered herb is said to be useful as a vulnerary.

Castanha de Cera (*Pachira*, Sp.).—The leaves possess mucilaginous properties. The seeds contain 25·385 per cent. of a colorless fat, melting at 77°F. and are edible. The tree affords a strong bast.

Crua or *Melao do baboclo* (*Sicana odorifera*, Naud., *Cucurbitaceæ*). —In the ripe state it (the fruit) has a very pleasant odor. The juice is used as a refrigerant and antifebrile remedy, and the seeds are regarded as a powerful emmenagogue.

Fava contra (*Canavalia gladiata*, DC. *Leguminosæ*.)—The seeds

are used as a remedy against the bites of serpents. The seeds are pounded with rum, the liquid pressed out and drunk, and the expressed portion applied to the bitten part.

Fructo de Abutua (*Abuta rufescens*, Aubl.).—The root is a considerable article of export as Pareira brava; it would be interesting to know for what purpose it is used, as it is impossible that the thousands of kilos exported should be used for medicinal purposes.

Fructo de Arradiabo (*Cnidoscalus neglectus*, Pohl. *Euphorbiaceæ*.)—In Pernambuco the freshly bruised leaves are used as a poultice for carbuncle. The leaves and husk of the fruit are furnished with glandular hairs which sting most virulently, causing blisters where they touch the skin and giving rise to fever. The seeds contain 31·5 per cent. of a purgative oil.

Fructus de Barbatimao (*Stryphnodendron polyphyllum*, Mart. *Leguminosæ*).—The pods contain soft sweet pulp, with a styptic after-taste, and are used for hemoptyses. The fresh pods were found by Dr. T. Peckolt to contain 7·9 per cent., and the dried pods 17·584 per cent. of tannin, which gives a black precipitate with ferric salts.

Fructos de almecega (*Protium heptaphyllum β brasiliense*, Engl. *Burseraceæ*).

Fructos de Buchuiha (*Luffa operculata*, Cogn. *Cucurbitaceæ*).—The fruits are as drastic in their action as colocynth, and are used in dropsy, amenorrhœa, liver complaints, and tropical anæmia (opilacao). For dropsy, a fruit is boiled for some time, strained and beaten until cold, into a froth like white of egg, and a tablespoonful given every half-hour until vomiting or purging take place. In the northern provinces of Brazil it is used indiscriminately by the common people in all diseases, and, consequently, is sometimes used with bad results. For general use a bottle is half filled with the sliced fibrous part of the fruit, the bottle filled with rum and allowed to stand a day in the sun. In any indisposition a small dram glassful is taken, which usually produces six to eight evacuations.

Fructos de Copaiba (*Copaifera nitida*, Mart.).—The pods are used only by herbalist in the treatment of gonorrhœa, but with success. It is noteworthy that the pods contain 19·568 per cent. of a soft resin, having the odor of balsam of copaiba, and that the odor of copaiba is found only in the wood, bark, and pods of the tree, the black seeds containing 3·558 per cent. of a fat oil, having the odor of tonka

bean, and the orange yellow arillus surrounding the seed being free from odor.

Fructo de Cujeté (*Cresentia Cujete*, L.).—The pulp of the unripe fruit is beaten with sugar and taken in teaspoonful doses as a remedy for catarrh and bilious fever, and the expressed juice in doses of 8–15 grams in the treatment of convulsions. In the province of Pernambuco the full grown unripe fruit is heated over a fire until the shell begins to crack, and the pulp then removed, or squeezed out while hot, and given in doses of two spoonfuls for traumatic tetanus. The herbalists mix the heated mass with tapioca meal and make it into pills, or rather boluses, which they give for elephantiasis. Externally, it is applied to ruptures, and as a poultice for headache, bruises, scalds, and to ripen boils. The seeds are also used by the common people as a tænifuge. The not pleasant pulp of the ripe fruit is eaten by negroes and Indians without unpleasant results. With the juice of the ripe fruit a cough linctus is prepared. The pulp, on examination was found to contain malic, tartaric and crescentinic acids, a tannin giving a green color with salts of iron, a bitter substance, brown resin, etc.; a kilogram of the fresh unripe fruit afforded 292·700 grams of juice, which yielded 1·690 gram of crescentinic acid crystallized in four-sided prisms from the alcoholic solution. The seeds contain an acrid, bitter, fat oil.

Jaca (*Thevetia neriifolia*, Juss. *Apocynaceæ*.).—One kernel eaten, or pounded with milk and drunk, acts as a purgative in about a quarter of an hour; sometimes also producing vomiting. The usual dose as a purgative is half a seed, in rheumatism and dropsy. It is also a popular remedy for snake bites. Two seeds are beaten with a beer-glassful of rum and strained, and a tumblerful taken every half-hour or hour and the residue applied to the wound. It is now, however, becoming supplanted by the subcutaneous injection of permanganate of potash. Notwithstanding that the activity of this antidote is doubted in Europe Mr. Peckolt says that in Brazil there is almost daily proof of its distinct efficacy.

Fructo de Papagaio (*Mahonia* sp.?)—In the province of Minas, this fruit is called "Moribo," and in San Paulo "Moluro." It is a popular remedy for gonorrhœa. Parrots are very fond of the fruit.

Fructo de Peroba (*Aspidosperma Peroba*, Tr. Allen. *Apocynaceæ*).—The seeds are used as a purgative.

Laranjas de Mato (*Gardenia suaveolens*, Vell. *Cinchonaceæ*).—The

bitter root-bark is used as a tonic in intermittent fever. The fruit is roasted in ashes and eaten by the Indians.

Baunilha do Rio (*Vanilla palmarum*, Lindl. *Orchidaceæ*).—The pods are collected in the province of Rio de Janeiro, in abundance on the banks of the river Parahyba, and would by proper treatment afford a good article of export. They contain 1·03 per cent. of vanillin.

Casca de Angrio Vermelho (*Piptædenia gida*, Benth. *Mimoseæ*).—Much used as an alterative and blood purifier, being given in decoction made in the proportion of 60 grams to 500 grams of water, and strained. Externally it is used in the form of decoction or fluid extract as an application for œdema of the feet and chronic ulcers. The wood of the tree is valued as timber and the sawdust is used for preparing a fluid extract of syrupy consistence which is used as a vulnerary. It was used by Dr. Peckolt in a hospital at Rio de Janeiro for wounds, and in three days the pus had nearly disappeared, and in twenty days the wounds were perfectly healed. The sawdust was found to contain 5·128 per cent. of a soft resin soluble in ether, and 20·512 per cent. of tannin. A tincture of the leaves is also used for bruises and cuts.

Casca de barbatimao (*Stryphnodendron polyphyllum*, Mart. *Mimoseæ*).—The bark is frequently exported to Europe as *Cortex adstringens*. According to Dr. Peixoto the decoction of the fresh bark, or the powder in the form of a poultice, is useful for unhealthy sores, and as an injection for leucorrhœa or passive hæmorrhage. It is used in the form of snuff for epistaxis, and the extract in the form of plaster for rupture. In cases of *post-partum* hæmorrhage a decoction is made of 20 grams of the bark to 240 of water, the decoction strained, and 4 grams of acetic ether added; of this mixture a tablespoonful is given every hour. Dr. T. Peckolt found in the fresh bark 0·792, and in the fresh leaves 0·528 per cent. of a tannin which gives a green precipitate with salts of iron.

Casca de Cedro Vermelho, *Cedrela vellosiana*, Rœm.—According to some writers on Brazilian drugs the bark possesses emetic properties, a statement that has also been copied in some French works. According to Dr. T. Peckolt's investigations in the hospital of Rio Janeiro the statement is not supported by facts. He gave the decoction in the dose of 40 grams of the bark to 240 grams of water without the least symptom of nausea being produced, and in one patient suffering from dysentery, in whose case an emetic was indicated, the decoction cured

the patient. The fluid extract is given with success in diarrhœa, a tablespoonful being given every three hours of a mixture of 8 grams of the fluid extract in 120 of water. The fresh bark was found to yield only 0·03 per cent of tannin, which gives a black precipitate with iron salts. Ten kilograms of the dried bark yielded 1·976 grams of a volatile oil, having the odor of the wood.

Casca de Raiz de Cipo Suma (*Anchietea salutaris*, St. Hil. *Violaceæ*). —The root bark is officinal, and is much prized as a remedy for syphilis and herpetic eruptioms. It is also used for whooping-cough in the form of syrup, 4 grams of tincture mixed with 30 of simple syrup. The decoction is prepared of the strength of 30 parts of the root to 500 of water; the powder is taken in doses of 2 to 6 grams three times a day.[1]

Casca de Guaranhem (*Lucuma glycyphlœum*, Eichl. *Sapotaceæ*).— Dr. Peckolt found in monesia bark 22 per mille of monesia—tannic acid—which gives a black coloration with iron salts, 6·960 of gallic acid, 2·800 of monesin, an acrid amorphous body, 0·090 of lucumin, a body crystallizing in silky needles, 1·130 of a bitter substance and 15·000 of glycyrrhizin, tartaric and citric acids, wax, etc.

The dose of the decoction is made from 30 grams of the bark boiled in 500 grams of water. Of the extract (known as monesia), the dose is 0·6 to 1·5 gram, taken during the day. The tincture is prepared from 1 part of the bark and 5 of spirit of wine.

Casca de Mulungu (*Erythrina Mulungu*, Benth. *Leguminosæ*).— A largely used and much valued remedy. In small doses it acts as an anodyne and sedative; in larger doses it produces sleep without causing excitement; it is also used in cases of hypertrophy. It is added to baths to relieve rheumatism.

This drug has no doubt an important future, and it is well worthy of further examination from a physiological and a therapeutic point of view. The active principle has not yet been obtained in a definite form, although a yellow odorless resin and a strongly narcotic extract of a disagreeable bitter taste, tannin and nitrate of potash have been prepared from the bark.

Casca Paratudo (*Hortia arborea*, Engl. *Rutaceæ*).—The bark is an excellent tonic; it has an agreeable aromatic odor, a mild bitter flavor with a burning after-taste, due to the presence of volatile oil. It is a favorite tonic for weak digestion. The infusion is used in zymotic

[1] See *Archiv der Ph.*, 1852, Bd. 97, p. 271.

fevers, especially when severe (*atuctische*) skin eruptions are present.

The dose of the powdered bark is 0·5 to 1 gram. A concentrated infusion is used as an enema in prolapsus ani.

Casca de Pao Pereira (*Geissospermum Vellosii*, Fr. Allen).—The active principle, geissospermine, is best prepared by making an alcoholic extract, distilling off the alcohol and treating the residue with acidulated water and precipitating with ammonia. When prepared directly from a watery extract of the bark, the alkaloid is purified with difficulty.

Casca de Sangue de Drago (*Croton erythæma*, Mart. *Euphorbiaceæ*).—The bark is a favorite astringent. A decoction of the fresh bark evaporated to an extract of a weak syrupy consistence is known as mellado de sangue de drago. In chronic diarrhœa of adults the dose is a teaspoonful three times a day; for children a teaspoonful of a mixture of 2 grams of the extract with 60 grams of water every three hours. It is employed in the form of injection for gonorrhœa and leucorrhœa. It has also been used as a vulnerary with success.[1]

Casca de raiz Timbo (*Lonchocarpus Peckoltii*, Waura, *Leguminosæ*).—A very powerful narcotic drug, which deserves to be introduced into Europe.

Casca de Tinguaciba (*Xanthoxylum Tinguassiba*, St. Hil. *Rutaceæ*).—The decoction is used as a powerful sudorific, and in the form of a gargle for affections of the throat, also as an addition to odontalgic tincture. Dr. Peckolt has found in the bark an alkaloid producing effects similar to those of pilocarpine.

Quina do Remijio (*Remijia ferruginea*, Ol. *Cinchonaceæ*).—The root-bark has long been used as a remedy for intermittent fever by the wandering natives. The active principle is an acid resin having a shining crystalline appearance and named by Dr. Peckolt vieirin after Dr. J. A. Vieira de Mattos, who discovered it in 1860. The vieirin can be prepared by exhausting the powdered bark with water rendered alkaline with ammonium or sodium hydrate and precipitating the liquid with acetic or hydrochloric acid. If extracted by means of milk of lime and alcohol it is obtained in a shining crystalline form resembling santonin. It is soluble in alcohol and alkalies and is given in a mixture with wine and bicarbonate of sodium.

Raiz de azedinha grama (*Oxalis violacea*, Vell.).—Root used as a diuretic; it is sweet and edible.

[1] See also *Archiv der Pharm.*, 1862, Bd. 108, p. 142.

Raiz de Calumba de Brasil.—This is used as a tonic in weak digestion and for diarrhœa. *Simaruba salubris*, Engl.

Raiz de Jaborandi do Rio (*Artanthe Mollicoma*, Miq.)—Root used as a diuretic and in liver complaints. See Peckolt in *Pharm. Centralh.*, 1878, No. 37.—*Pharm. Journ. and Trans.*, October, 1884, p. 327.

EULACHON OIL—A SUBSTITUTE FOR COD LIVER OIL.

By A. B. Lyons, M. D., Detroit, Michigan.[1]

The bays and estuaries of the Pacific coast of British America and Alaska, are annually visited by immense shoals of a small fish popularly known as the candle fish, or, adopting the vernacular name, as the eulachon or outachon. This fish belongs to the family of the salmonidæ, and bears the scientific name Thaleicthys pacificus (Richardson) Girard. It is nearly allied to the capelin, which it resembles also in its habits.

The Indian name is variously spelled eulachon, eulachan, hoolacan, oolachon, ootachon, etc., and is corrupted by the English settlers at Victoria, into hoolakins.

The fish is also frequently confounded with other species, and in Oregon is generally known as smelt. Its habitat is the northern part of the Pacific ocean. In spring it approaches the shores to deposit its spawn, entering the bays and estuaries in countless numbers. It never goes far from the Ocean however, although multitudes of the fish are taken near the mouths of the large rivers, particularly in Frazier's river and in the Naas.

The candle fish is less than a foot in length. It is described as having a somewhat pointed and conical head, a large mouth, teeth on the pharyngeals, and the tongue rough; the lower jaw, palatines, and vomer destitute of teeth. Its color is greenish yellow on the back, passing into silvery white on the sides and belly, sparsely spotted with dirty yellow. The spawning season is in April and the first half of May. During their run they furnish food not only to the Indians, but to thousands of sharks, halibut, porpoises, and other predatory fish. As a pan fish the eulachon is said to have no superior, but the fish is valued chiefly for its oil, which is used as food by the Indians. So rich in oil is the entire fish that when dried, it serves the natives for torches,

[1] Analytical Department, Laboratory, Parke, Davis & Co.

whence the name candle fish. The aborigines take the fish in immense numbers by the aid of a primitive contrivance, resembling a rake or comb, the moonlight nights being the most favorable time for carrying on the operation.

The fish are submitted to a rude operation for "rendering" the oil, or they are dried, and smoked. In recent times the dried and salted fish have become an important article of export from Victoria, and there is now on the Naas river a manufactory for the oil, which has been employed to some extent in England as a substitute for cod-liver oil. It has been used medicinally to a considerable extent in British Columbia, but I do not find any record of clinical observations with regard to its therapeutic value.

Chemical analysis, of course, cannot reveal the medicinal properties of any drug. Cod-liver oil itself is an example of this. While universally accepted as an agent of singular efficiency in promoting nutrition, particularly in strumous and tubercular patients, it has thus far guarded as a profound secret the cause of its efficiency, and the reason of its superiority in this respect over other oils, vegetable or animal. It has been frequently subjected to chemical analysis, and one wonderful discovery after another announced with flourish of trumpets, each supposed, for a while, to furnish a key to the mystery, but each in turn has been abandoned, and the medical profession generally regard the remedy as nothing more than a concentrated and easily assimilated food. Iodine, phosphorus, iron, biliary acids, cholesterin, and oxide of propyl are among the constituents of the oil which have been supposed to give it its peculiar medicinal character, but none of these substances is present in a quantity sufficient to justify any such hypothesis, and one after another all have been abandoned as unsatisfactory.

Some other animal oils, however, have been found to improve nutrition in much the same way as does the familiar cod-liver oil; only by clinical experiments can we determine the value of any new claimant for a share of the honors which cod-liver oil has monopolized.

A comparison of the oils, however, may prove of interest and, possibly, even of value, should eulachon oil become a common article of of commerce, whether it should prove to be more or less valuable than its rival.

The oil of the candle fish as it is sent into the market at present contains much palmitin and, probably, stearin, so that at common temperatures it is only semi-fluid.

The olein, which for medicinal purposes, at least, must be regarded as eulachon oil, forms a limpid fluid of a pale straw color and fishy odor, unlike that of cod-liver oil, perhaps, to many, less repulsive. Personally, I find it impossible to overcome my natural aversion to any fish oil; those who are less fastidious in their tastes, declare that the oil of the candle fish is positively delicious. Probably most patients would find little to choose between eulachon and cod-liver oil.

In specific gravity the eulachon oil differs from any other oil heretofore described. At a temperature of 59°F. (15°C.), water at the same temperature taken as standard, its specific gravity is 0·9071; at 77°F. (25°C.), the apparent sp. gr. is ·9012, referred to same standard. The specific gravity of cod-liver oil ranges from 0·92 to 0·93, generally being about 0·927, at 59°F. Other fish oils have nearly the same range of specific gravity, and the vegetable oils which consist chiefly of olein, are only a trifle lighter, sp. gr. 0·915 to 0·920; and the same is true of animal oils, like lard oil, neat's foot oil, etc., which consist mainly of olein. Shark oil is much lighter (sp. gr. 0·870), and so also is sperm oil (sp. gr. ·875 to ·883.) I do not know whether shark oil has been subjected to chemical anaylsis, but from its specific gravity one may infer that it does not consist wholly of olein, and this is known to be the fact in regard to sperm oil.

In viscidity there is a notable difference between cod-liver oil and the eulachon oil. Under the same conditions of temperature and pressure, 40 parts only of the eulachon oil will flow from an orifice which will discharge 45 or 46 parts of cod-liver oil. Experiments, however, must embrace a larger number of samples than mine have done to be of much value.

When mixed with sulphuric acid (5 volumes of oil with one of acid) the temperature rose 55°C. (100°F.). With cod-liver oil the elevation of temperature is about double this, 112°C. (202°F.).

The color reactions with acids are quite different from those of cod-liver oil. Mixed with one-third its volume of nitric acid (sp. gr. 1·27), it develops at once a pink color, which fades slowly to amber. After 15 hours' standing the mixture is considerably thickened, and is of a deep amber color, with a reddish cast. Cod-liver oil treated in the same manner turned at first pink, faded rapidly to pale amber; after 15 hours the color remained pale amber, and the mixture was more fluid than the former, but with thickened portions partially separated.

With Cailletet's test, a mixture of phosphoric acid, sp. gr. 1·44, 12

parts, sulphuric acid, sp. gr. 1·84, 7 parts, nitric acid, sp. gr. 1·37, 10 parts, eulachon oil produces at once a pink color, fading to a shade of brown; at the end of 15 hours the color of the solution was of a pale reddish brown.

Cod-liver oil shows a similar initial coloration under this test, but fades to straw color or amber, if the oil is pure.

Sulphuric acid does not produce in eulachon oil the rich purple color which it gives cod-liver, and other oils containing biliary constituents. It produces instead a deep brown, verging as much toward yellow as toward red.

With the elaidin test eulachon oil solidifies rapidly; after 15 hours a small portion only of the oil remains unsolidified—color of the mixture, brown. In the case of cod-liver oil the action is much less rapid; at the end of 15 hours there remains still a large proportion of fluid, which is of a very dark color—resembling molasses.

The oil leaves only a trace of ash when ignited, and the constituents of this probably are unimportant. The oil probably contains, like cod-liver oil, a trace of iodine—the quantity of this element present in the latter is greatly over-stated in the books. It is altogether too minute to be regarded as of any influence, even if the iodine is present as is believed by some, in the form of an organic compound. All fish oils have been found to contain iodine, and in proportions not much smaller than the cod-liver oil itself.

A portion of the eulachon oil was saponified and the soap decomposed. The fatty acids thus obtained amounted to 95·85 per cent. of the oil. As appeared subsequently, however, this is not all fatty acid.

The oil was found to contain about 20 per cent. of palmitic and stearic acids, 60 per cent. of oleic acid, and 13 per cent. of an unsaponifiable substance, which is the most peculiar and interesting thing about it. This substance is of an oily consistency at ordinary temperature in summer, has much lower specific gravity than oleic acid, or any other constituent of ordinary fats, sp. gr. ·865 to ·872 at 59°F., and seems to resemble the unsaponifiable constituent of sperm oil.

This interesting substance I hope hereafter to make the subject of further investigation to determine its chemical composition, and its behavior towards reagents. At present it is enough to call attention to its existence as a considerable constituent in this oil, and to suggest the probability that it may give to the oil properties quite distinct from

those of most animal oils. The low specific gravity of the substance, and its indifference to most reagents remind one strongly of the paraffins, and now that petroleum and petroleum oil are recognized to have a positive influence in tuberculous complaints we shall not be surprised if we find that eulachon oil owes any therapeutic power it may be found to possess to this peculiar body.

Cod-liver oil, it is true, does not contain anything corresponding with this substance, or if it does the quantity must be very small. Cod-liver oil contains about 80 per cent. oleic acid, 8 or 9 per cent. of palmitic and stearic acids, and only 1·82 per cent. (Allen) of unsaponifiable matter, a considerable proportion of which is cholesterin.—*Therapeutic Gazette*, September 15, 1884.

BRIEF NOTE ON OIL OF LIMES.

By Francis Watts, F.C.S.

The recent notes on oil of limes in the Journal of the Pharmaceutical Society appeared to indicate that the distinguishing characters between hand made and distilled oil of limes were not very generally known. The following memoranda will perhaps prove of interest.

Ecuelled or hand made oil is of a decidedly yellow color, varying in intensity, being darker in new specimens. The specific gravity also varies, being higher in newer samples; the mean specific gravity of seven samples, all under twelve months old, being ·8734. The following table gives a number of carefully determined specific gravities of various samples, all fairly new.

Temperature = 29° C. (84° F.)		Water at 4° C. = 1·0000.	
Age.	Sp. gr.	Age.	Sp. gr.
Under 24 hours	·8755	About 6 to 7 months	·8722
2 or 3 days	·8750	About 5 to 6 months	·8719
About 7 months	·8737	About 18 months	·8709
About 6 months	·8732		·8704
About 8 months	·8726	Distilled	·8554

Ecuelled oil may be regarded as an almost saturated solution of citropten, or lime camphor, and this may be made a means of distinction.

The difference in flavor and aroma is so marked as to scarcely require any other means of distinguishing ecuelled from distilled oil, the ecuelled having a decided and fragrant lemon-like smell, whilst the distilled is very inferior, frequently possessing little more than the smell of turpentine.

The distilled oil is usually almost colorless, is specifically lighter, of inferior aroma, and contains no citroptene.

When this citroptene is treated with oxidizing agents, *e.g.*, nitric acid or preferably chromic acid mixture, a red resinous acid body is produced (probably the limettic acid of Vohl).[1] So that if a sample of oil of limes be agitated with chromic acid mixture for some few minutes and the mixture filtered, the red resin will be left on the filter and sides of the test tube, if the oil be hand made; but will not appear if simply distilled.

When agitated with Nessler's test ecuelled oils give pale yellow mixtures (apparently darker mixtures as the oil becomes older). Distilled oils, on the other hand, give dark grey and black mixtures, thus affording a marked distinction. Old resinized ecuelled oils, too, give dark greenish-grey mixtures.

By means of Nessler's test I believe it would thus be possible to detect admixtures of from 5–10 per cent. of distilled oil; but I have not yet had an opportunity of studying the reaction in the case of old but carefully preserved samples.—*Pharm. Jour. and Tran.*, October, 1884, p. 322.

CHLOROFORM AND CROTON OIL FOR TAPE-WORM.—Dr. Bernard Persh, according to the "Medical and Surgical Reporter," has most satisfactory results in cases of tape-worm with chloroform and croton oil. He suspends one drop of croton oil and a drachm of chloroform in one ounce of glycerin; this to constitute one dose. The medicine is best given in the morning before breakfast, and no preparatory treatment is required, except half an ounce of Rochelle salt on the evening preceding the removal. The preliminary laxative is not necessary to effect a cure, and it was omitted in several cases; but its administration facilitates the examination of the evacuations, prevents breaking up the worm by hard fæces, and allows the parasite to pass more quickly through the intestines after becoming detached. The medicine is not unpleasant to take, and acts quickly. If any intestinal irritation is caused it may be controlled with bismuth and opium after the expulsion of the worm.—*Weekly Med. Review*, November 8, 1884.

[1] These bodies are at present under investigation.

ESTIMATION OF MORPHINE IN OPIUM.

By v. Perger.

The author has carefully examined the methods in ordinary use for the estimation of morphine in opium, as to their relative accuracy, making analyses of the same sample of opium by each method, and finds that they give most variable results. The methods in common use are Godeffroy's, Austrian Pharmacopœia, and Merk's.

Godeffroy's method is as follows: 10 grams of dry opium powder are mixed with 25 cc. of hot water, and then pressed between folds of linen, this operation being repeated until the water is no longer colored. The liquid is then boiled two or three times with 8 to 10 grams of slaked lime and filtered; ammonium chloride is added to the filtrate until after standing it smells of ammonia. The morphine crystallizes out after 12–24 hours, and can be estimated by collecting it on a tared filter and washing it with dilute ammonia.

The Austrian Pharmacopœia method is as follows: 10 grams of dry powdered opium are treated with 90 grams of a mixture consisting of 140 grams of distilled water and 40 grams of hydrochloric acid (12·2 per cent.). The residue remaining after filtering and washing is weighed. If the opium be good, it should not exceed 4·5 grams. The filtrate is mixed with 20 grams of powdered sodium chloride, and allowed to remain for 24 hours in the cold. The precipitate is then collected and washed with a saturated solution of sodic chloride. The filtrate is treated with ammonia and allowed to stand for 12 hours. The morphine which crystallizes out is separated by decantation, collected on a filter, and washed with as small a quantity of distilled water as possible; it is then dried in a porcelain basin, and treated with an equal weight of a mixture consisting of equal weights of acetic acid (20·4 per cent.) and water. After adding water the liquid is filtered. The filtrate should not exceed 70–80 grams. An excess of ammonia is added to it, and it is allowed to remain for 12 hours, when the precipitate is collected and weighed. The weight should exceed 1 gram.

E. Merk's method is as follows: 15 grams of opium are cut up and boiled with 100 grams of 45 per cent. alcohol. The extract is separated from the residue by filtration, and the latter is again treated with 100 grams of alcohol; 8 grams of crystallized soda are added to the

solution, and it is evaporated without stirring. The residue is treated with 60 grams of cold water, and decanted into a glass cylinder; the clear liquid is poured off, and the undissolved portion washed again with 30 grams of cold water, and then with 45 grams of alcohol (90 per cent.), and finally collected. The crystalline mass remaining on the filter is dried between filter-paper, dissolved in 15 grams of acetic acid (1 part of acid sp. gr. 1·06 to 8 parts of water) and 15 grams of distilled water, and then filtered through the same paper on which the residue was collected. The filtrate is treated with ammonia, and the precipitate is collected and weighed after standing for 12 hours.

The author has devised the following method: 10 to 20 grams of the opium to be examined are boiled for a short time with 15 to 30 grams of caustic baryta and about 150 to 200 cc. water. The mixture is then filtered, and the residue repeatedly boiled with small quantities of water until the solution fails to give a reaction with molybdic acid and sulphuric acid. Excessive boiling is to be avoided, and as a rule the filtrate should not amount to more than 400–500 cc. A stream of carbonic anhydride is passed into this solution, which contains all the morphine, until the liquid is supersaturated, and then the whole is evaporated on a water-bath as quickly as possible. The residue is moistened with absolute alcohol, transferred to an Erlenmeyer's flask, and exhausted with successive quantities of boiling absolute alcohol until a sample evaporafed on a watch-glass no longer gives a morphine reaction. This usually requires from 300 to 400 cc. alcohol. The alcohol is removed by distillation, and the residue left in the flask is allowed to stand for some time with 15 cc. of ammonia. It is next collected on a tared filter, dried at 40°, and treated repeatedly with chloroform. This is the crude morphine. It should be light-brown to straw-colored. Crude morphine generally contains substances which can be classed under two heads, namely, (1) those which are insoluble in acetic acid; (2) those which are soluble, but which are reprecipitated by ammonia and potassium ferrocyanide. The author finds that the amount of the impurities is always small, and that the difference between the crude and the pure morphine is principally due to the loss of morphine in the process of purification. The following table gives the percentages of morphine found by employing the various methods. The impure products are marked thus*.

PERCENTAGE OF MORPHINE.

Opium.	E. Merk.	Aust. Pharm.	Godeffroy.	v. Perger.
I	.....	4·17*	1·63*	9·04
II	5·99	2·04*	0·507*	8·37
III	.....	.....	5·567	9·1
IV	9·32	0·253*	8·52	11·0
V	1·72	0·3*	1·17*	3·68
VI	13·57	?*	8·42	14·75

—*Jour. Chem. Soc.*, 1884, p. 1218; *Jour. prakt. Chem.* [2], xxix, p. 97.

[NOTE.—The extraction of morphine by *macerating* opium or its preparations with water and large excess of baryta was recommended by F. F. Mayer in "Amer. Jour. Phar.," 1863, page 387.—EDITOR.]

REMARKS ON TESTS FOR ALBUMEN IN THE URINE, NEW AND OLD.[1]

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In a paper on the above subject in the recently published *Manchester Medical Chronicle*, Dr. William Roberts, referring to the fact that the urine in health contains various forms of albuminoid matter, expresses his belief that the new tests for albumen which have recently been brought into prominence, especially picric acid, tungstate of soda, potassio-mercuric iodide, and the acidulated brine-test, "produce frequently in the urines of perfectly healthy persons a reaction which is undistinguishable from the reaction which indicates disease or abnormality." This point was put to the proof by the examination of the urine of thirty-one healthy persons—students, candidates for insurance, and others, who exhibited no signs of disordered health, and in whose urine heat and nitric acid gave no indication of albumen.

Dr. Roberts, of course, needs not to be reminded that albumen, in greater or less abundance, and for long periods of time, may be unquestionably present in the urine of persons who exhibit no signs of

[1] From the *British Medical Journal*, October 11.

disordered health. If this were not so, albuminuria would not be so frequently unsuspected and overlooked as it is.

Dr. Roberts proceeds to state that "the acidulated brine-test gave a reaction in eleven cases, picric acid in fourteen, the tungstate test in twenty-eight, and the mercuric iodide in twenty-nine cases."

Deferring for the present what I have to say of picric acid, I should have expected, from observations which I have quite recently made, that the other three tests would give a slight but appreciable reaction in every specimen of normal urine. It is a fact that all normal urine contains a small but variable proportion of mucus.

Now, mucin is precipitaed by dilute acetic acid and mineral acids. (See the article "Mucus," in Watt's "Dictionary of Chemistry," vol. iii, p. 1059–60). It is also precipitated, as Dr. Oliver has shown ("Bedside Urinary Testing," p. 37), by citric acid. The addition of a small quantity of acetic or citric acid to normal urine gradually renders it slightly but decidedly turbid, by coagulating the mucin; and Dr. Roberts mentions the fact that, when nitric acid is added to albuminous urine, "the albumen is thrown down just about the line of junction of the two liquids, while the mucin is brought into view toward the upper part of the column of urine, where it gradually forms a diffused haze, quite distinct from the opalescent haze at the line of junction."

To this I may add that, when nitric acid is placed at the bottom of a column of normal urine, a diffused haze of coagulated mucin may commonly, after a time, be seen near the upper part of the column.

Seeing then that mucin is precipitated by both mineral and vegetable acids, we are at no loss to understand that any test containing one or other of these agents should give a reaction with normal urine. The acidulated brine contains hydrochloric acid, the tunstate of soda and potassio mercuric iodide require the addition of either citric or acetic acid before they act as albumen-precipitants; and they one and all, by the reaction with mucin, slowly cause, in most, if not all normal urines, a cloudiness more decided than that which results from the action of the acids alone. With picric acid, however, the case is entirely different. In the form of a saturated aqueous solution, and uncombined with any other agent, it is a most delicate albumen-precipitant, but it gives no precipitate in normal urine unless an acid, such as citric or acetic acid, be added to it. This can readily be proved by the following experiment. Take about a drachm of freshly

passed normal urine, and add an equal bulk of picric acid solution. The yellow mixture will remain quite clear, unless, as sometimes though rarely happens, some turbidity results from a deposit of urates, which would be at once removed by heat. Now add a few drops of dilute acetic or citric acid, and the mixture will, in a minute or two, become hazy from precipitated mucin, the haziness occurring much more slowly than the immediate opalescence, which results from the presence of a slight trace of albumen, but, like that, being unchanged by heat.

Another experiment consists in adding acetic or citric acid to normal urine, then, after waiting a minute or two to complete the coagulation of the mucin, passing the urine through a filter and adding picric acid to the filtrate; when the mixture will remain quite free from turbidity. I have tested many hundred specimens of normal urine with picric acid, and I confidently assert that in such specimens, no precipitate or haziness occurs when unmixed picric acid is used as the test-agent; and it may be that the different results with this test obtained by Dr. Roberts are due to his having added acetic or citric acid to the picric acid in his experiments. The only precipitates other than albuminous which may result from picric acid, employed alone, are urates which rarely occur, except when the mixture is allowed to stand for some time; peptones, which I have met with only twice in as many years; and vegetable alkaloids, such as quinine, when large doses are being taken. These all differ from an albuminous precipitate in the fact that they are readily and completely redissolved by heat, while they may be distinguished from each other by the microscope. (See the author's lectures on "Albumen and Sugar Testing," p. 11, Smith, Elder & Co.)

It appears, therefore, from very numerous and careful observations, that albumen is the only substance found in the urine which gives with picric acid a precipitate insoluble by heat.

The difference, then, between picric acid and the other new tests for albumen is this—that picric acid, unmixed with other reagents, while it is a most sensitive and trustworthy test for albumen, gives no reaction with mucin. On the other hand, the potassio-mercuric iodide, tungsgate of soda, and brine, do not precipitate albumen, unless when combined with an acid; and this combination gives a reaction with mucin, which is not distinguishable from a minute trace of albumen.

I have been in the habit of using the potassio-mercuric iodine only

as a check upon the picric acid test, when small quantities of albumen only were present, and, until lately, had not thought of applying it to normal urine. I now find, however, that this test-liquid, when acidulated—as it must be, to act at all—gives a distinct opalescence in most, if not all, normal urines. I find, too, that after the mucin has been removed from normal urine by its coagulation with acetic or citric acid, and subsequent filtration, the addition of the potassio-mercuric iodide to the filtrate causes a decided opalescence, which is probably due to the precipitation of some substance other than mucin in the urine.

In testing urines which contain a mere trace of albumen, it is important to remove any turbidity that would interfere with the process. Urates would be removed by heat, suspended mucus and other particles by filtration. The addition of the picric acid solution to a turbid specimen might give a fallacious appearance of coagulated albumen, when, in fact, there is nothing more than some increased opacity, due to the yellow staining of the suspended particles.

Picric acid is itself sufficiently acid, when added in excess, to dissolve and clear a phosphatic turbidity. In the rare case of the urine being so highly alkaline as to prevent the coagulation of the albumen by an excess of picric acid, the plan is to add sufficient citric or acetic acid to neutralize the alkali, then to filter, and add the picric acid to the filtrate.

It appears, then, that picric acid as a test for albumen is more free from fallacy than any other, not even excepting heat and nitric acid, which Dr. Roberts expresses his determination to fall back upon. Of course, in a doubtful case, no one would neglect to apply more than one test. That picric acid is a more sensitive test than heat and nitric acid is easily proved by taking a highly albuminous specimen and gradually diluting it up to the point where—though these tests fail to detect it—picric acid still gives a distinct reaction.

The main advantages of picric acid as a test for albumen are the following:—It instantly detects a small amount of albumen which nitric acid would indicate only slowly or not at all; while, on the one hand, an insufficient addition of the test does not, as is the case with nitric acid, prevent the subsequent coagulation by heat; neither, on the other hand, does an excess of picric acid redissolve the precipitate, as does an excess of nitric acid. For bedside urinary testing, the portability of the innocuous powder is a great convenience. The fact

that, with caustic potash, it is an infallible qualitative and quantitative test for sugar, may be said to more than double its value as an urinary test. For bedside use, Mr. Hawksley, 357 Oxford Street, makes a waistcoat-pocket test-case, consisting of a test-tube four inches long, in which are packed two smaller tubes, one containing picric acid powder, the other grain-lumps of caustic potash, and also a small spirit lamp. These are enclosed in a metal case, not much larger than a pencil-case.

Another small case contains a nipple-pipette which, amongst other uses, is convenient for conveying urine from the vessel to the test-tube.

The picric acid which is used for sugar-testing should be purified by recrystallization. The commercial samples usually give a red color when boiled with liquor potassæ; and I lately saw an impure sample which not only gave this red color, but the liquid was rendered turbid by fine granules. The impurity was removed by solution and recrystallizations. A simple test of the purity of picric acid for chemical purposes is to boil a mixture of one volume of the saturated solution with half its volume of liquor potassæ. The resulting liquid should be quite pellucid, and of a pale lemon-yellow color, with no red tinge.—*Pharm. Journ. and Trans.*, October, 1884, p. 329.

RESORCIN.—Recent investigations have demonstrated that the disagreeable side-effects of resorcin, the nausea and vomiting are by no means due to the remedy itself, but to the impurities accompanying it. Since the *resorcinum purissimum vel resublimatum* has been in the German market the reports of reliable authors have accumulated, which prove that resorcin, if pure, is the most reliable remedy for vomiting we probably possess, and not only in adults, but also in children. Besides its prompt effect in this regard, it is said also to stimulate and to strengthen to an extraordinary degree the digestive functions of the stomach and of the upper part of the small intestines.

Dr. Justus Andeer, in Munchen (*Allg. Med. Centr. Zeit.*, July 5, 1884), recommends resorcin in these cases, in doses varying from sixteen to forty-eight grains, and draws the attention of the profession to the effect which the remedy exerts in very large doses, such as employed in anæmia and chlorosis. Symptoms of intoxication set in, and the individual under its influence acts like a drunken person. A good *old* red wine (Bordeaux, Macon, etc.,) acts like a specific; a few glasses of it putting at once an end to the symptoms mentioned. This action of the red wine is probably due to its containing iron in considerable quantities.—*Med. and Surg. Reporter*, September 13.

MARTYNIA AND ITS HUMBLE SERVANTS.

By Joseph Crawford, Ph.G.

From an Inaugural Essay.

This subject is chosen to show, not the presence of some powerful alkaloid or other valuable therapeutical principle which I think is wanting, but rather some of the relations existing between plants and insects, and to awaken a deeper interest among students for observing the indigenous Materia Medica and the wonderful forms exhibited by plants.

The sciences of Botany and Entomology have been full of delightful interest to their respective students that the idea of connecting the two (in their earlier history) was almost disregarded, but now the one is known to be as dependent on the other for the perfection of its species, as the other is on it for the perpetuation of its species. The Martynia has been selected, not as showing these relations to their utmost, but as a common example and full of untiring interest.

It is a native of the Southwestern States, but is cultivated in the eastern section annually for its flowers and fruit, the latter for pickles and condiments of like nature. The species proboscidea is the one under consideration, and about the only one that receives any horticultural attention. It belongs to the natural order Bignoniaceæ, and is commonly called Unicorn Plant, from the resemblance of the curved capsule and prolonged beak (with horny texture) to a horn, and the specific name is consequently easily derived. The genus was named in honor of Professor Martyn, of Cambridge.

The plant is about two or two and one-half feet high, occasionally prostrate from weight of branches and fruit; leaves entire, large, round and heart-shaped, oblique at base, upper alternate, lower on very long petioles, and all nearly horizontally expanded. Inflorescence a large many-flowered raceme; calyx bell-shaped, with five unequal lobes, the upper lobe narrow, ⅜ to ½ inch long; the others are nearly equal. The lower portion of the calyx is split open to base, and subtended on either side near the top by a large fleshy conical bract as long as the calyx, and of the same color, or a little darker. The corolla is gibbous, inflated, about an inch long, or longer, hangs obliquely on a pedicel twice its length; the lobes nearly equal, spreading, about half an inch broad. The lower lobe is somewhat longer and a trifle broader, and furnishes the most characteristic marking as a temptation or solicitation of insect aid that can be found in any order outside of the Orchidaceæ, represented in this section of the United States, and will be described later. The tube of the corolla is spotted with yellow and purple both on the interior and exterior; the lobes have their share also in the same colors, but not so much of the purple dotting. There are four perfect stamens, didynamous, the fifth only partly developed, club-shaped and woolly; the filaments are long, and one or two are twisted. The anthers are regularly two-celled, and rectangular when opened, when they expose the pollen on the surface in four miniature bricks, by the cohesion with the anthers. The filaments diverge in their recurvature, but

always meet, to cast their pollen, in adjacent pairs. The pistil is also recurved, and exserted at all times beyond the stamens; stigma bifid, the upper portion rolled back, and the lower rolled inwards and somewhat longer than the upper.

On account of this arrangement, the anthers overcapped or covered by the stigma, it scarcely receives any pollen by the natural source, but most, if not all, through the agency of insects, in various ways.

One of the largest of its humble servants in this cause is the female of Bombus virginicus, which can be seen in early mornings flying from flower to flower seeking the nectariferous secretion. Its size will just admit its entrance into the tube of the corolla, and it must consequently brush its hirsute thorax against the opened anthers, and a quantity of the pollen adhering to it by contact is brushed off on the lower lobe of the stigma of the next flower visited; the stigma of the same flower is not fertilized by its own pollen by this bee, because of its sensitiveness; when the insect brushes against it on entering, it immediately closes in order to retain any pollen accumulated, and remains so for a lapse of time, or until the insect has left the flower.

This bee is one of its best benefactors, as on account of its size it cannot enter the tube of the corolla without touching either the stigma or stamens and deposit pollen obtained from the last visited flower and receive a new supply from the present one; and, aiding fertilization as described, its presence is an assurance of the complete fertilization.

Although this depends principally upon the bulk of the insect, yet a number of these winged friends are small and have each their peculiar mode of assistance.

"Nature abhors perpetual self-fertilization," is true, but she always supplies the deficiency by having the aid of the wind, birds or insects in the distribution of the pollen; the wind for dicœcious plants generally, and for small flowers with an interruption or transposition of parts. Those dependent on insects have some special attraction or solicitation for them, generally in a peculiar form of the flower or beautifully bright coloring of the whole or a part of it.

This plant depends on this last entirely; from its dependent position and quiet coloring of the exterior surface of the corolla and calyx, and a great portion of the interior of the corolla, it would be passed unnoticed by the myriads of winged insects constantly passing near, were it not for the beautiful marking on the lower portion of the corolla. It begins at the insertion of the corolla on the receptacle, is prolonged through the tube in brilliant golden lines about the size of the filaments, and terminates on the lower lobe in bright golden splotches, in exact imitation of the stamens discharging their pollen. The quiet pearl hue of the background adds so greatly to the deception that even the instructed are too apt to consider them the essential organs without further investigation.

One of its numerous *small* friends is the Mellisodes prunosa, very frequent at all hours of the day and extremely busy; its size and general appearance is similar to that of the worker of Apis mellifica, and unobservant individuals are likely to confound them; but they can easily be distinguished by the little triangular white spot on the head, just above the

mouth, and by their seeking separate flowers; the Apis scarcely visiting the Martynia, while the Melissodes crowd the corollas to the verge, so eager are they for the nectar secretion. They are as industrious and persevering as their relative, for frequently can they be seen crowding the whole length of the corolla, waiting patiently for their turn at the fountain of nectar, and one, undisturbed, will remain from 15 to 20 minutes at a single flower. It is only when congregated thus that they are of any service in aiding fertilization, as on account of their size they have easy access to all parts without distributing much pollen; but when a number of them are assembled the advent of a new arrival causes a flutter of excitement momentarily among the little congregation, pollen is detached, and, adhering to portions of their bodies, is transported to the stigmas of other flowers which are thus fertilized.

The Melissodes prefers the base of the flower for its exertions, but the genus Halictus, represented by a beautiful female, is content with the pollen, and works very industriously at it, letting no small amount fall on the backs of the "waiting congregation" of Melissodes, etc., and, these subsequently transporting it to the stigmas of other flowers, cross fertilization is again produced. This insect is much smaller than the preceding, much shyer and a great deal more active, but not as numerously represented.

In describing the plant nothing was said about the viscid glands covering its entire surface, giving it a somewhat glaucous hue, and one unaccustomed to the plant would in all probability, on hasty inspection, rank it as velvety to the touch, but on a more extended investigation the mistake would be clearly shown and the true nature reveal itself by its resinous secretion. Although so numerous, they can scarcely be described without the aid of the microscopical instrument, except that they are of various sizes, the largest about a line in length, rather rigid, composed of from four or six to ten or twelve transparent elongated cells, terminated in a flattened globe (mostly), but when a foreign substance touches the tip a thread-like glutinous mass is drawn out, exhausting the gland in part and causing it to assume another shape. They are more numerous and larger on the under side of leaves, main stem and parts of the inflorescence, while the upper side of the leaves is covered with a shorter kind, nearly free from resin (probably from attrition of elements), and the long curved pods are comparatively free from it.

The office of the glands is at present unknown, but undoubtedly they are of consequence in assimilation to the plant in this wise: from their glutinous nature, small insects meet their fate by passing too near, or, forced by the wind upon them, and struggling, they become still more entrapped, and death relieves them of their misery, and they become disintegrated by unseen forces. Whether or not they are absorbed in the liquid or gaseous form is yet to be ascertained; many writers have approached the subject, but accomplished nothing. Darwin and Mrs. Treat have proved the presence of gastric juice in Drosera and Dionæa; but then the adaptations are dissimilar, these being mobile and the Martynia immobile.

It is not altogether unlikely that the odor of the plant assists in the "slaughter of the innocents," by alluring them to it, as it is very offensive to many people having occasion to pass it. From the upper surface of a leaf

taken from the middle of the stem were counted 16 hemipterous and 1 coleopterous, and on the lower surface 112 dipterous and 5 coleopterous insects, insects with a few living aphides, in different stages of development. This is the number from one ordinary leaf, and it is very easily seen that a few of these plants in a garden must necessarily rid it of countless numbers of these, apparently, creatures of detestation, and render man an unseen service of good. Some of these thus caught were too minute to specify, and others comparatively rare; such were a male and female Halictus. Phyllobreta dilaticornis was very frequent; Ascogaster basalis quite numerous, and Haltica fuscula was very well represented. It was noticed that the Halictus, in its flight to the flowers, frequently came to its death on the glands beneath.

From these few facts we are safe at least in pronouncing Martynia an entomophilous plant, an insecticide, and in all probability insectivorous, worthy of considerable attention, more than I have had time to bestow, and from two partial afternoon associations with it.

The investigation of *species* was assisted by Prof. Ezra T. Cresson and Mr. Aaron, of the Academy at Shannonville, Pa.

VARIETIES.

CHLORAL HYDRATE AS A VESICANT.—Dr. A. M. Fauntleroy recommends powdered chloral sprinkled on adhesive plaster and melted by a gentle heat (not more than enough to cause the plaster to adhere to the flesh), it is applied while warm to the part where the blister is wanted; within a few minutes a gentle heat is felt, increasing in intensity for a short time, then gradually easing off, and at the end of about ten minutes the part is free from pain, and effectually blistered. Thus within about ten minutes the work of an old-fashioned blister is accomplished, with many advantages over the latter, (1) rapidity of action, (2) the ease of application, (3) the none-occurrence of strangury, and (4) farther, it may never be taken off to have the blister dressed, but may be allowed to remain until the plaster loosens and comes off itself. The blistered surface in the meanwhile healing kindly.—*Southern Clinic.*

AMYL NITRITE.—Dr. Richardson gives the following formula for the administration of amyl nitrite by the mouth: Amyl nitrite, pure, minims xxxvi; ethylic alcohol (sp. gr. 830), drachms vi; glycerin to one and a half ounces. One fluidrachm to be taken in a wineglassful of warm water. In asthma this method is specially recommended.—*Weekly Medical Review.*

KOLA NUT.—M. Dujardin-Beaumetz showed a specimen of the fruit of the Sterculia acuminata, a tree indigenous to Central Africa, at a recent meeting of the Paris Société de Thérapeutique (Progr. Méd.), and remarked

that analysis showed that it contained a large amount of caffeine, tannic acid, and a little theobromine. Naval surgeons had employed it with success in the chronic diarrhœas of hot climates, and its use was likewise indicated in cardiac affections and in the cachexiæ. He himself had seen good effects from it in these cases, given either in the form of an infusion of the roasted nut, as an elixir, or in the shape of chocolate. In all these cases it acted as a tonic and astringent.—*Med. Bulletin*, October, 1884.

USE OF NAPHTALIN.—Professor Rossbach, in Jena, has observed that in all catarrhal conditions of the intestines, and in chronic intestinal affections, naphtalin is a specific, and invariably causes the disappearance of the malady. He never noticed any bad side or after-effect, and most of the naphtalin passed off again by the bowels, while a small percentage of it, changed to phenol, made its appearance in the urine. The usual dose for adults is from eight to ten grains daily. The remedy has also a very favorable influence upon vesical catarrh, the purulent discharge at once ceasing, and he attributes its beneficial effect in such cases to the changing of naphtalin to phenol in the urine. Patients generally do not object to the taste of naphtalin, purified by sublimation; as a corrigens for its odor, a few drops of oil of bergamot is recommended.—*Deutsch. Med. Zeit.*

BROMIDE OF AMMONIUM is comparatively liitle used except in association with the other bromides and with hydrobromic acid, and modern experience seems to indicate that it is perhaps not less used than formerly, but that in the increasing use of bromides this does not increase as rapidly as the potassium salt. The taste is much more disagreeable than that of the potassium salt, and becomes more disagreeable by prolonged use, and it is more irritant and less acceptable to the stomach; in common with salines in general, it is best given in iced water. The dose is that quantity which will yield the desired degree of bromine effect. In some persons this may be ten grains three times a day, and in others fifty grains. For its full effect bromism must be induced, and the dose be then diminished so as to fall just short of that. For such use about twenty grains three times a day will be about the proper dose to begin with. Its principal use is in the treatment of epilepsy, but it is probable that the potassium salt is better adapted to this purpose.—*Amer. Practitioner*, November, 1884.

HYPODERMIC INJECTION OF OSMIC ACID.—A. Eulenburg reports on twelve cases of hypodermic injection of osmic acid. The amount he injects at a time is 0·05 gram. The solution used is never greater than 1 per cent., but the dose is repeated sometimes as often as fourteen times. It is desirable to pass the injection as nearly as possible in the immediate neighborhood of the affected nerve. Of the twelve cases of different forms of neuralgia, three were cured, four improved. The other cases were of long standing and were not improved.—*Weekly Med. Review*, September 20, 1884.

CHLORIDE OF METHYLENE.—In a memoir published a few months since Messrs. Regnauld and Villejean gave their reasons, based upon chemical

analysis, for believing that the product at that time supplied to surgeons under the name of chloride of methylene was often, if not always, a simple mixture of chloroform and methylic alcohol. Subsequently, with a view of studying the subject physiologically, they prepared what they claimed to be pure chloride of methylene, the action of which was tested on dogs and other animals, comparative experiments being also carried out with chloroform. They report in the "Pharmaceutical Journal" that the results strengthened their previous belief and that the misnamed mixtures owe their properties to chloroform only. The physiological action of chloride of methylene was found to differ entirely from that of chloroform, with the exception that both compounds produced unconsciousness. The symptoms resulting from the inhalation of chloride of methylene were so constant, and of such an alarming character, that the authors think its employment as an anæsthetic agent during surgical operations is out of the question, and they doubt whether it has ever been so employed. Clonic contractions of muscles, of epileptiform and choreiform kind, were the alarming symptoms observed, but such movements are by no means confined to one member of the chlorine series of anæsthetics.—*Therapeutic Gazette.*

Fluoride of Quinine for Enlarged Spleen.—Fluoride of quinine has recently been recommended by Dr. Weddell, of Calcutta, in the treatment of enlarged spleen. He has investigated the action of fluoric acid and the fluorides, and has come to the conclusion that in cases of chronically enlarged spleens of malarial origin the effects obtained are often very striking. In very small doses the fluorides have produced marked benefit in cases of rickets and other diseases associated with malnutrition of the osseous system. Of the salts of fluoric acid, Dr. Weddell considers those of quinine or quinetum (*i. e.*, of the mixed cinchona alkaloids) to be the best.—*Med. and Surg. Reporter.*

Salicylate of Atropine.—From the "Lancet," September 27, 1884, we learn that salicylate of atropine appears to be in some quarters displacing the sulphate. Frederici has prepared the neutral salt by dissolving the atropine (twenty-three parts) with the aid of gentle heat in a suitable quantity of pure alcohol, and then adding the salicylic acid gradually to complete neutralization (eighteen parts) the solution being carefully tested with litmus paper during the operation. The liquid is then evaporated in a water-bath to a gelatinous consistence, the mass assuming an amber color, and the drying is finished in a sand-bath or drying-closet. The compound deliquesces quickly when exposed to the atmosphere, but is said to keep well if properly preserved, though the solution is very unstable.—*Med. and Surg. Reporter.*

Helenin crystallizes in four-sided prisms, insoluble in water, but soluble in ether and alcohol; it has a yellow color, melts at 72°, and boils at 140° C. (284 F.); its formula is $C^{21}H^{28}O^{3}$. Helenin has been extensively employed in the general hospital of Madrid in the treatment of tuberculosis, chronic

broncho-pneumonia, and whooping-cough. Considerable benefit has been obtained in early phthisis, and striking results in chronic bronchitis, and especially in whooping-cough. In all cases helenin diminished the attacks of cough, and relieved the dyspnœa and pains of the chest, without causing any symptoms of narcotism. The expectoration diminishes and becomes almost gelatinous. It also has a decided tonic action in the digestive organs, and improves markedly the appetite in phthisis.—*Quarterly Therapeutic Review.*

ASEPTOL.—A phenol compound, termed orthoxyphenylsulphurous acid, has been recently introduced into therapeutics under the name of "aseptol," this title having been given to it on account of its remarkable germicide qualities, which excel those of carbolic and salicylic acids. Aseptol is an amber-colored fluid, of a density 1,400; it has a slight odor, but is more pleasant to the smell and is less poisonous than carbolic acid. Last November Drs. Leroy and Van den Shrieck, of Antwerp, studied the therapeutic applications of aseptol, and reported most satisfactory results as an antiseptic. It has the following advantages over antiseptics in common use:

1. It is very soluble in water.
2. It is very slightly caustic.
3. It is free from irritative qualities, and may be applied for a long time to the skin, the eyes, the bladder, etc.
4. Finally, its slight toxicity, which permits its use internally in considerable doses, and also the application of concentrated solutions in diphtheritic pharyngitis and laryngitis.—*La France Médicale; Med. Times*, Nov. 1, 1884.

SANTONIN.—Kuechenmeister has shown that lumbrici lived in a mixture of albumen, santonin and water, but they succumbed in a few minutes in an oily mixture containing santonin. Powder or troches are not a good way of administration, for the santonin is then mostly absorbed in the stomach. The only rational preparation is an emulsion which is slowly absorbed in the intestines. In any other mode it has a toxic effect with many, but given with castor oil it is not disagreeable, and very efficient.—*Revue de Science Medicale.*

FLUID EXTRACT OF GREEN COFFEE.—Like tea, coffee can also be readily obtained of excellent quality and uniform prices.

In the trials of the fluid extract of coffee an amount containing 1·95 grains of caffeine produced the same results as three grains of pure caffeine or two grains of caffeine as it exists in tea, and about 2·58 grains as it exists in guarana.

The method of comparing these agents by a physiological test is not offered by Dr. Squibb as "a method of precision or as worthy of any great trust, and it is especially guarded against being received for more than it is worth. It is only a practical plan, carried out with much pains and care

for close guessing at results, but the observations are fairly consistent among themselves, and therefore place the agents in a true relation to each other."

This would seem to be too modest a statement of their worth, and the profession are certainly indebted to him for a better acquaintance with the composition and comparative merits of some much-used drugs.—*Dr. F. Minot, in the Boston Medical and Surgical Journal; Louisv. Med. News.*

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, November 18, 1884.

The second regular pharmaceutical meeting was held this day, Professor Henry Trimble being called to the chair, in the absence of the president.

The minutes of the last pharmaceutical meeting were read, and there being no corrections needed, they were approved.

The Report of the Smithsonian Institution for the year 1882 was presented to the College, as well as the Report of the Commissioner of Education for 1882 and 1883, which have both been acknowledged by the librarian.

For some time past a paragraph has been printed in various medical journals recommending *carbonate of titanium* for the relief of dysmenorrhœa; Mr. Bullock stated that it was very doubtful if such a compound could exist, and that it could not be obtained for commercial uses was now well ascertained; calls having been made for it, samples of the so-called carbonate of titanium were obtained and subjected to analysis, which proved it to be simply carbonate and oxide of iron largely mixed with silica; this was also the result of an examination conducted by Prof. Trimble.

Mr. Bullock also called attention to a specimen of *native platinum* obtained from the black sand from the rutile in southern Oregon, where it exists in considerable quantities; these sands are composed largely of magnetic oxide of iron, titanium, osmium and iridium; in the sample which he exhibited about four ounces of the platinum mixed with the native alloy of osmium and iridium has been separated simply by washing.

Among the specimens exhibited was one of *native green oxide of nickel*, also from Oregon; the vein from which it was taken being about eighteen inches wide and lying between walls of sulphate of baryta; the value of such an ore can be best estimated from the fact that it contains about fifteen per cent. of nickel, while the ordinary ores used for the supply of commerce contains but about half of one per cent.

Attention was called to a specimen of *fluid extract of belladonna* prepared from recently dried root of very fine quality; the sides and bottom of the bottle were studded with numerous crystals; these were removed, washed and dissolved in water, but gave no reaction with Mayer's test for alkaloids; when treated with Fehling's test for sugar, gave no reaction; the solution was then boiled with a few drops of nitric acid and again tested by Fehling's test, and gave a copious precipitate evidencing the presence of glucose.

By these reactions Mr. Bullock determined the crystals to be cane sugar uncontaminated with glucose.

Dr. F. L. Slocum exhibited some specimens from Dr. H. W. Jayne's chemical laboratory. Among them were two of *aniline*, one of remarkable purity having the boiling point of 181·7° to 182°, and a specific gravity of 1·022, phosphorus trichloride and phosphorus pentachloride.

Prof. Trimble alluded to some *petroleum spirit* which Dr. Slocum had prepared for him, but further than to state that it was prepared by use of strong nitric acid he could not say, as the experiments he was prosecuting were still unfinished, but when results were ascertained he would present a paper upon the subject.

A new pattern of *Gas Stove* by W. F. Shaw, of Boston, who has been engaged in this industry for twenty-five years, was exhibited by Mr. Bullock; the advantages it possesses are the solidity of the stand, the addition of an inverted cone, which is placed over the centre of the flame, causes the gas to mix thoroughly with the column of heated air and secures a perfect combustion.

As there was no other business, the meeting, on motion, adjourned.

THOS. S WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

THE CALIFORNIA COLLEGE OF PHARMACY held its twelfth annual commencement in Metropolitan Hall, San Francisco, on the evening of Nov. 13th, when President Reid, of the University of California, conferred the degree of Ph.G. upon the following successful students:

Josephine E. Barbat, *Apium Graveolens.*
Henry A. Ball, *Analysis of Wilhoit Mineral Water.*
Henry E. D. Besthorn, *Apium Officinarum.*
William H. Dick, *Chamæcyparis Lawsoniana.*
Frederic L. Krause, *Aqua Menthæ Piperitæ.*
Albert L. Leber, *Euphorbia Ocellata.*
Charles G. Levison, *Euphorbia Pilulifera.*
George W. Loehr, *Qualitative and Quantitative Tests of Drugs.*
James G. Munson, *Volumetric Tests of Arsenical Preparations.*
Thomas S. Newby, *Chenopodium Californicum.*
George Oberdeener, *Rumex Hymenosepalus.*
Andrew D. Walsh, *Malva Rotundifolia.*
William B. Whitney, *Euphorbia Eremocarpus.*

Addresses were made by Dr. A. L. Lengfeld, Vice-President of the College, and by S. P. Sprecher, D. D., and the valedictory addresses were delivered by Prof. W. M. Searby and by H. A. Ball, Ph.G. The first prize (gold medal) was carried off by G. Oberdeener, the second prize (5 volumes of Roscoe and Schorlemmer's Chemistry) by A. L. Leber, and the junior prize (lecture tickets to senior course) by Chas. J. Schmelz.

The exercises were enlivened by music, and, according to the programme, no flowers were distributed.

We notice that the lectures extend through nine months, commencing

in February and closing towards the end of October. The College graduated for the first time a lady, who is the fourth female graduate in pharmacy in the United States, one lady having previously earned this honor in New York and two in Philadelphia.

MARYLAND COLLEGE OF PHARMACY.—At the monthly meeting, Nov. 20th, Prof. Chas. Caspari read an interesting paper on new and rare pharmaceutical preparations and chemicals, and exhibited samples of extract of stramonium seed and boro-glycerin prepared by him.

In describing some points of interest in pharmaceutical manipulations, quite a spirited debate ensued, in which Messrs. W. S. Thompson L. Dohme, A. P. Sharp and others participated.

Mr. Thompson, in speaking of *powdered ergot*, recited the past experience of pharmacists before the days of fluid extracts, when frequently the the dispenser was summoned by the night bell to freshly powder some grain ergot for that class of cases requiring it, so often to occur in the still hours of the night. He gave as his opinion, based upon observation and experience, that the deterioration of powdered ergot is due to moisture, and if this be dispelled by drying, the powder will remain unimpaired for a long time, if kept in a securely stopped bottle.

Mr. A. P. Sharp gave a brief description of his observations in vegetable physiology, as to how plants grow and receive their nourishment; the formation of chlorophyll, etc. Some of his views were combatted by Mr. L. Dohme and Prof. Caspari.

Prof. Caspari exhibited a *percolator*, and after some general remarks on percolators and percolation, on motion, a committee was appointed, with Prof. Caspari as chairman, to inquire into and report upon the relative merits of percolators.

A committee was also appointed to consider the propriety of adopting the New York and Brooklyn Formulary by the College for the use of its members.

Mr. J. F. Hancock addressed the meeting on "*Pharmacists as Retail Liquor Dealers*," protesting against the demands of the State requiring pharmacists to register as such dealers under the law, by procuring the retail liquor dealer's license. He called upon the College to defend the good name of pharmacy by the appointment of a committee to wait upon the Sheriff and State Attorney, with the view of having pharmacists excused, except in cases where liquor is retailed by the glass. If the trader's license will not allow pharmacists to sell alcohol for uses in the arts, and alcoholic liquors as medicines, the College should make the effort to have the law so amended or added to as to issue a pharmaceutical license granting these privileges, because it is impossible to conduct a pharmaceutical business without these agents. The medical profession regard alcohol and fermented liquors as being medicinal, and in some cases they are regarded as poisons; therefore they should be dispensed by pharmacists only for medical uses, and under such restrictions as other dangerous remedies are sold. The Government license or tax was characterized as an unjust and arbitrary war measure, greatly to the dishonor of pharmacy,

and largely responsible for the dram business done by some pharmacists. He has no sympathy or respect for that class known as "Soda Whiskey Pharmacists," who in addition to the liquor dealer license should be required also to display a sign on the outside front of the establishment, advertising that department of trade, so demoralizing to pharmacy and baneful to domestic happiness.

EDITORIAL DEPARTMENT.

THE VENDING OF NOSTRUMS.—The following letter has been received:

MR. EDITOR:—At the recent meeting of the National Wholesale Druggists' Association held in St. Louis, the attendance being very large, perhaps no subject discussed gave rise to more, or as much attention and debate as "The Campion Plan." It is hardly worth while to state what this plan is, as the readers of the JOURNAL all know it is an arrangement entered into between the manufacturer of proprietary medicines and the retailer to secure to the latter the full retail price of such goods. I have nothing to say of the "plan," whether I think it wise or unwise, but what I do want to say is this, Does it not derogate from the dignity of the profession to have pharmacists take so much interest in the sale of the thousands of nostrums, secret remedies, with which the market is now flooded?

There were present at this convention of wholesale druggists a very respectable delegation from the "National Retail Druggists' Association," educated men in their profession, some at least prominent members of the American Pharmaceutical Association, and it did appear to the writer that these gentlemen—as pharmacists—were out of place in urging so strenuously the adoption of *any* measure relating to *quack* medicines.

One might have supposed, in listening to their long-continued and eloquent efforts, that the chief part of the business of the modern apothecary consisted in buying and selling proprietary remedies, secret preparations, of which they know nothing beyond the printed name, accompanied by certificates of those who had been miraculously cured by their use.

It strikes the writer that, in the course pursued by these gentlemen, the public would be justified in looking upon their action as an *endorsement* of the importance and efficiency of the nostrums with which the country is flooded at the present time. I may be considered old fogyish in saying that I have always supposed that the principal tendency of a sound pharmaceutical education was to discourage and, if possible, suppress all quackery and quack preparations.

I cannot help feeling that the worthy gentlemen who participated in the debates on the subject in the late convention at St. Louis forgot for the moment their "high calling" as members of a truly honorable profession, and lost dignity in asking the convention to endorse as legitimate the very articles against which they should set their faces.

Oh for a return to the good old days of past years, when "patent medicines" comprised less than a dozen articles, and even these were handled with a sort of feeling that they were contraband to the profession of a respectable apothecary! Has it come to this—that all the years of hard study, and attendance upon lecture after lecture, the preparation of a carefully digested and highly elaborate thesis, after months of toil, a long-continued brain-torturing examination, and the final graduation, and obtaining of the coveted "parchment," is all to end in handing to your customer some miserable quackery for which you must be sure to obtain the highest

possible price? Why, any peanut seller on the street corner could do this as well.

(Signed) ROBERT SHOEMAKER.

PHILADELPHIA, *November*, 1884.

The above letter needs no comments from us; it expresses, substantially, the views which have been advocated by this Journal during the past fifty-six years. Although the public will naturally look to the drug store for supplying them with what they regard as "medicines"—nostrums, in all their various forms, are no part of pharmacy; their buying and selling is a purely commercial transaction, which as such, is not degrading to pharmacy, but is apt to have this effect if the pharmacist identifies himself with these nostrums, and becomes the advertising agent for such preparations, and, by the distribution of circulars, almanacs, etc., the recommender of specifics and cure-alls. The legitimate province of pharmacy is the preparation and dispensing of medicines; but he who measures or weighs out only what he has purchased, wherein does he differ from a common dealer? As to nostrums and secret medicines, the American Pharmaceutical Association, from its very inception, has taken a decided stand against them, and during its early history the tendency of American pharmacy pointed towards the endeavor of ridding itself of an evil which, unchecked, would necessarily result in the degradation, instead of the elevation of pharmacy; the evil had to be tolerated, but it was not petted. It would doubtless conduce to the best interests of the public if the vending of nostrums could be confined to properly educated pharmacists, provided that the latter would not lend a helping hand towards increasing sales which—no matter what pecuniary profit they may temporarily afford—will react to the disadvantage of pharmacy. But it must be remembered that the purchasing and selling of nostrums requires neither knowledge nor skill, and merely enough experience for discerning which will sell best and at the same time afford the largest profit. Any shrewd business man may therefore become the purveyor of ready-made medicines, and entering the trade from a purely mercantile view, and without being able to appreciate the dangers arising from an indiscriminate use of his wares, is more likely to make a business success of such a venture than the conscientious pharmacist who is not willing to shoulder responsibilities against his better judgment, based upon education, experience and knowledge. Such and similar considerations may render it desirable for pharmacists to retain in their hands a trade which in itself is inimical to their profession, because it makes them mere middle-men, or distributors instead of producers.

Much has been said about the encroachment of the pharmacist's domain by traders; but the other side of the question should not be overlooked. Of the thousand and one fancy articles frequently kept for sale by pharmacists, very few only are used for their medicinal properties or can be claimed to possess such. In many stores exposing a sign with the inscription "Pharmacy," a more or less lucrative business is carried on in cigars, liquors and other commodities which are not used as medicines and are generally sold by other tradesmen. The pharmacist is therefore an invader as well as the sufferer from the invasion by others.

Whether the Campion plan or any other plan devised with a view of keeping up the profit from the retailing of patent medicines be successful or not, we repeat that the latter, if their sale be confined to conscientious and discreet pharmacists, could be stripped of much of the harm, which their unrestricted use is sure to produce. But a professional benefit will never be derived from the handling of nostrums; it is sure to follow, however, if pharmacists will again turn their attention to producing that which they should produce, viz., all pharmaceutical preparations and as many chemicals as their facilities will admit of.

MONUMENT TO THE MEMORY OF JEAN BAPTISTE DUMAS.—A committee has been organized in Paris in the Palais de l'Institut de France, with the object of collecting contributions for the purpose of erecting a statue of Dumas in Alais, his native town. M. Pasteur has been chosen president, and among the members are the venerable Chevreul, H. Milne-Edwards, Boussingault and many others whose names are well known in science. The committee has also members in most European and in three American countries, those for the United States being Prof. Gibbs and Crafts.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Der Kaffee in seinen Beziehungen zum Leben. Für Haus und Familie und für Gebildete aller Stände geschildert von Dr. H. Böhnke-Reich. Berlin und Leipzig: Fr. Thiel, 1884. 8vo, pp. 224.

We have noticed the first edition of this work in the JOURNAL for 1875, page 575, and have given there a brief synopsis of the contents of that pamphlet which contained sixty-five pages of text. The one now before us has grown to nearly four times the original size, and may be regarded as a well-performed amplification of the original sketch, combining the interest of the latter with entertaining and often humorous descriptions, narratives and quotations from old and new authors, among them, for instance, Mark Twain's account of the manner in which the beverage is prepared and served in Germany. But the little work is not only entertaining, it is also instructive, and there is scarcely a detail connected with the commercial or scientific history of coffee, which is not more or less fully discussed in this monograph. While it deserves to be read by cultivated persons in general, its appearance at the present time is particularly opportune, since two centuries have passed since the introduction of coffee in Western Europe, which occurred in England after 1650, in Vienna in 1685, in Regensburg in 1686, etc.

The Proceedings of the following State Pharmaceutical Associations have been received:

Indiana. Held in Evansville, May 13–15, pp. 191. Next meeting at Indianapolis, on the second Tuesday in May. Secretary, J. R. Perry, Indianapolis.

Kentucky. Held in Louisville, May 21, 22, pp. 99. Next meeting at

Danville, on the third Wednesday in May. Corresponding Secretary, H. W. Evans, Danville.

Massachusetts. Held in Lowell, June 4, 5, pp. 250. Next meeting in Pittsfield, on the first Wednesday in June. Local Secretary, J. H. Manning, Pittsfield.

Missouri. Held at Sweet Springs, Brownsville, pp. 66. Next meeting at Sweet Springs, on the fourth Tuesday in June. Local Secretary, J. J. Thorn, Brownsville.

New Jersey. Held in Asbury Park, May 21, 22, pp. 64. Next meeting in Camden, on the third Wednesday in May. Chairman of Local Committee, Martin Goldsmith, Camden.

New York. Held in New York City, June 10–12, pp. 226. Next meeting at Saratoga Springs, on the second Tuesday of June. Local Secretary, Charles F. Fish, Saratoga Springs.

Pennsylvania. Held in Wilkesbarre, June 3, 4, pp. 232. With an engraving of the late Dr. G. Ross. Next meeting in Erie, on the first Tuesday in June. Chairman of Committee on Exhibits, J. B. Duble, Williamsport.

Virginia. Held in Lynchburg, May 20–22, pp. 71. Next meeting in Charlottesville, on the third Tuesday in May. Local Secretary, C. P. Benson, Charlottesville.

The Development of Chemistry and its Relation to Pharmacy. By Prof. Frederick B. Power, Madison, Wis.

An address delivered before the Wisconsin Pharmaceutical Association, August 6, 1884.

Hydrastine. By Professor F. B. Power.

Read before the American Pharmaceutical Association.

Reasons for Believing in the Contagiousness of Phthisis. By W. H. Webb, M.D., Philadelphia.

Read before the Philadelphia County Medical Society, June 11, 1884.

Transactions of the Louisiana State Medical Society at its Sixth Session, held at Baton Rouge, May 21–23, 1884. 8vo, pp. 103.

Questions submitted to the graduating class of the Medical College of Ohio, from 1871–72 *to the present time.* Cincinnati: W. H. Scott. 8vo, pp. 50. Price 50 cents.

Ueber die Verbreitung der Terpentin liefernden Pinus-Arten im Süden der Vereinigten Staaten, und über die Gewinnung und Verarbeitung des Terpentin. Von Prof. Carl Mohr, Mobile, Ala.

On the distribution in the Southern United States of the species of Pinus yielding turpentine, and on the production and manufacture of turpentine.

A valuable contribution on a subject of great economic importance, reprinted from Pharmaceutische Rundschau, New York, September, 1884.

Preliminary list of the Parasitic Fungi of Wisconsin. By William Trelease, Professor of Botany, University of Wisconsin, Madison.

This list comprises 268 species and gives also the hosts, all having been examined by the author and most of them collected near Madison. A

number of new species are described. An index of the hosts facilitates the use of this carefully prepared list, which is a reprint from the Transactions of the Wisconsin Academy of Sciences, Arts and Letters, vol. vi.

Jahresbericht des Vereins Kosmos von Philadelphia, für das Vereinsjahr 1883–84, 8vo, pp. 99.

Annual Report of the Society "Kosmos" of Philadelphia.

Besides the officers' reports the pamphlet contains the lectures, either in full or abstract, delivered before the Society, and among which may be mentioned the following subjects: The influence of chemistry on the development of industry; the telephone and its inventors; the sculpture of the earth's surface; the human voice; pulmonary consumption; unused forces, etc.

One Aspect of the Subject of Medical Examination, as set forth in the work of the North Carolina Board of Medical Examiners.

From the North Carolina Board of Health.

On the Development of Physiological Chemistry and its significance for Medicine. By Prof. Felix Hoppe-Seyler. Translated by T. Wesley Mills, M. A., M. D., Montreal, Canada.

The address was delivered at the opening of the new institute for physiological chemistry of the imperial University of Strassburg, February 18, 1884. Reprinted from the New York "Medical Journal," Aug. 16 and 23, 1884.

Explanation of the Pathology and Therapeutics of the diseases of the nerve centres, especially epilepsy. By J. McF. Gaston, M. D., Atlanta, Ga. 8vo, pp. 28.

Advance sheets from Transactions of the Georgia Medical Association, 1884.

Aiken, S. C., as a Winter Resort.

Besides a description, etc., of the Highland Park Hotel, the pamphlet contains a treatise on the sanitary qualities of the location and climate of Aiken, by Dr. P. G. Rockwell, and meteorological tables, by Dr. W. H. Geddings.

Permanganate of Potassium, its Action and Uses. By Prof. Roberts Bartholow, M. D.

Reprint from the "Medical News."

Action of the Halogen Acids and Ammonia on Lactones. By L. I. Morris, of Emporia, Kansas.

Inaugural dissertation submitted to the Kaiser Wilhelm University, Strassburg, for the acquisition of the doctorate.

The following dissertations from the University of Dorpat have been received:

Vergleichende Untersuchung der Gerbstoffe der Nymphæa alba, Nym. odorata, Nuphar luteum, Nuph. advena, Cæsalpinia coriaria, Terminalia Chebula und Punica Granatum. Von Alexander Fridolin. 8vo. pp. 94.

Comparative examination of the tannins of the plants named.

Ueber den Gerbstoff der Castanea vesca. Von Paul Nass. Pp. 39.

On the tannin of Castanea vesca.

Ueber die Ausscheidung des Strychnins. Von Peter von Rautenfeld. Pp. 44.

On the excretion of strychnine.

The excretion of the unaltered alkaloid takes place through the urine; it begins soon after the strychnine has been taken, and continues for several days, the duration depending upon the quantity of the poison taken.

Studien über die Darstellung, Zusammensetzung und Eigenschaften des Sennits (Cathartomannits). Von Albert Seidel.

Studies upon the Preparation, Composition and Properties of Sennit (Cathartomannit).

OBITUARY.

GEORGE BENTHAM, the celebrated botanist, died in London, September 10th, in the eighty-fourth year of his life. His most important works are: "Genera Plantarum," for which Sir J. D. Hooker was his co-laborer; "Flora Australiensis," in which he was assisted by Baron von Mueller, and his elaboration of several natural orders in Martius et Eichler's "Flora Brasiliensis," and in De Candolle's "Prodromus." Numerous contributions to the Transactions and the Journal of the Linnæan Society give proof of his well-directed labors in his favorite science.

ADOLF FENNEL died in Cincinnati, September 29th, in his sixty-first year. He was born and educated in Cassel, was apprentice in pharmacy in Eschwege, served as assistant in various parts of Germany and Switzerland, and came to the United States in 1851. Ten years later he established himself in business in Cincinnati, and in 1871 he was elected Professor of Pharmacy in the Cincinnati College of Pharmacy, which chair he afterwards exchanged for that of Chemistry.

CALEB H. NEEDLES died in his native city, Philadelphia, October 10th last, aged 64 years. He graduated from the Philadelphia College of Pharmacy in 1841, writing his thesis on Juniperus Sabina, which was published in this Journal, vol. xiii. For many years he conducted the business established by his father on the corner of Twelfth and Race streets. He took considerable interest in the College of Pharmacy and in the Trade Association, of which latter body he was the first President.

SEYMOUR SNOWDEN BURNS, of Minersville, Pa., died in Pottstown, September 25th, of typhoid fever, aged 27 years. He graduated from the Philadelphia College of Pharmacy in 1878.

CURTIS J. BOLLMAN, Ph.G., Class 1884, died at his home, Mansfield, Ohio, November 15th, of typhoid fever, aged 23 years.

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